

COMMERCIAL FISHERIES REVIEW



OL. 24, NO. 7

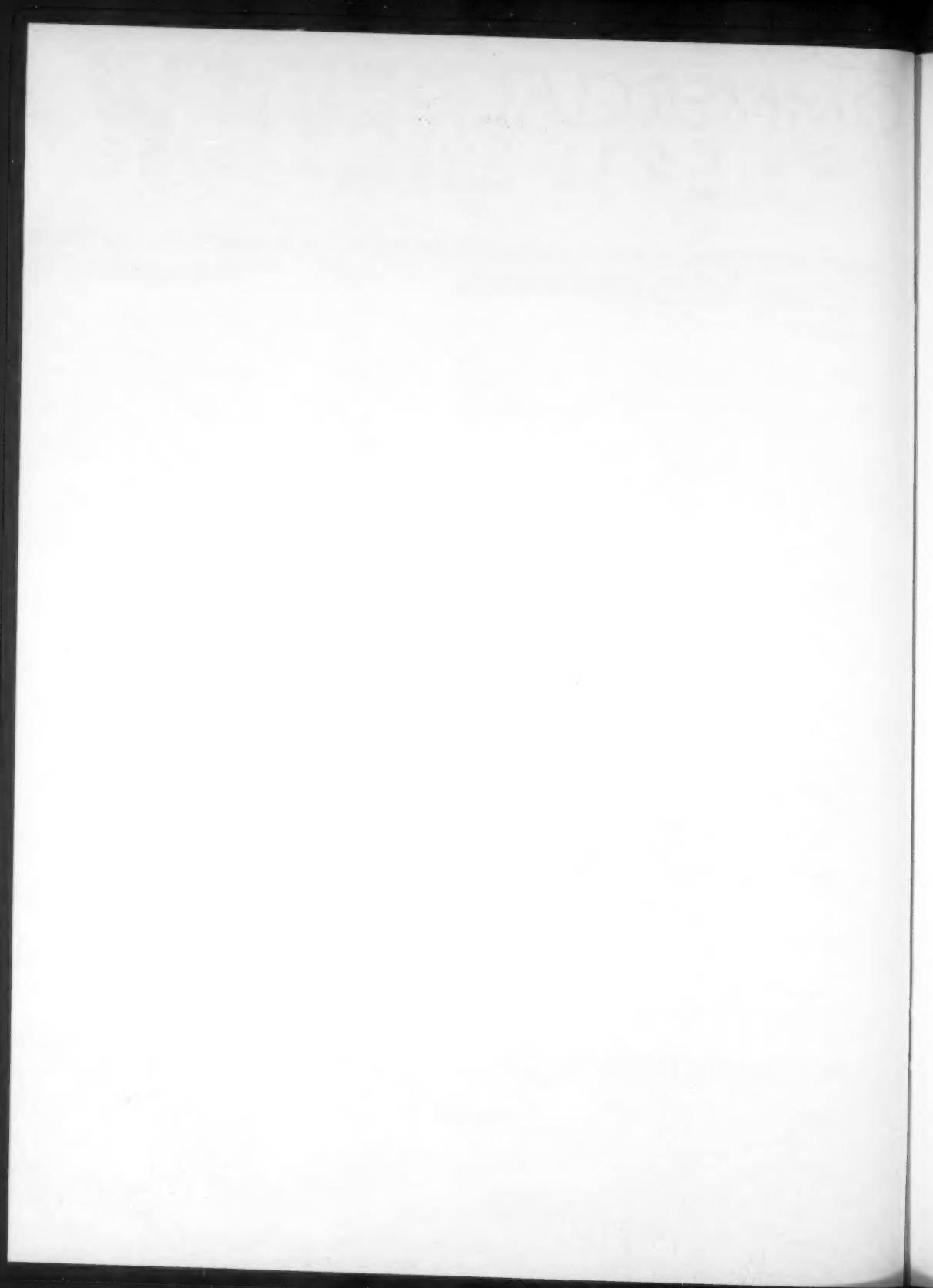
JULY 1962

FISH and WILDLIFE SERVICE
United States Department of the Interior
Washington, D.C.

THE UNIVERSITY
OF MICHIGAN

SEP 12 1962

MUSEUMS
LIBRARY



UNITED STATES
DEPARTMENT OF THE INTERIOR
STEWART L. UDALL, SECRETARY

FISH AND WILDLIFE SERVICE
CLARENCE F. PAUTZKE, COMMISSIONER

DEPOSITED BY THE
UNITED STATES OF AMERICA

BUREAU OF COMMERCIAL FISHERIES

DONALD L. MCKERNAN, DIRECTOR

DIVISION OF RESOURCE DEVELOPMENT

RALPH C. BAKER, CHIEF



COMMERCIAL FISHERIES REVIEW



A review of developments and news of the fishery industries
prepared in the BUREAU OF COMMERCIAL FISHERIES.

Joseph Pileggi, Editor

Address correspondence and requests to the: Chief, Branch of Market News, Bureau of Commercial Fisheries, U. S. Department of the Interior, Washington 25, D. C.

Publication of material from sources outside the Bureau is not an endorsement. The Bureau is not responsible for the accuracy of facts, views, or opinions contained in material from outside sources.

Although the contents of the publication have not been copyrighted and may be reprinted freely, reference to the source is appreciated.

Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget, May 10, 1960.

5/31/63

CONTENTS

COVER: Lake Michigan trawler McGinty (a former Gulf of Mexico shrimp vessel) now engaged in the new trawl fishery developing in the Great Lakes. Bulk of the catch made by trawlers fishing in the Great Lakes consists of alewife and chub, used at present mostly for the animal food market. A typical one-hour catch of about one ton is being lifted aboard the trawler.

Page 1 . Chicago Receipts of Fresh and Frozen Fishery Products, and Wholesale Market Trends, 1961, by G. A. Albano

Page TRENDS AND DEVELOPMENTS:
Air Freight:
9 . Fresh Pacific Salmon Shipped to New York
City by Air Freight
Alabama:
9 . Fishery Landings, 1961
Alaska Fisheries Exploration and Gear Research:
10 . Program for Exploratory Bottom Fishing, 1962
Alaska Fisheries Investigations:
10 . Salmon Fry Migrations
11 . Western Alaska King Crab Catch, First Quarter 1962
12 . Herring Fishery
California:
12 . Pelagic Fish Population Survey Continued
13 . Dover and Petrale Sole Tagging Studies
14 . Halibut Age-Weight-Length Relationships Studied
15 . Midwater Trawling for Salmon Fingerlings Continued
Central Pacific Fisheries Investigations:
15 . Study of Ocean Currents in Central Pacific Conservation:
16 . Ocean Food Resources Mentioned by President Kennedy in Address to White House Conference on Conservation
16 . Fishery Firm Receives One of Seven Interior Department 1962 Conservation Service Awards

Page TRENDS AND DEVELOPMENTS (Contd.):
Federal Purchases of Fishery Products:
17 . Department of Defense Purchases, January-April 1962
Florida:
17 . Fisheries Research, January-March 1962
19 . Fishery Landings, 1961
Fur Seals:
19 . Prices for Alaska Seal Skins Set New Record at Spring Auction
Great Lakes Fisheries Exploration and Gear Research:
20 . Seasonal Distribution Studies of Commercial Fish Stocks in Lake Erie Continued
Great Lakes Fishery Investigations:
21 . Lake Erie Fish Population Survey
Great Lakes:
21 . Yearling Lake Trout Planted in Lake Superior Industrial Products:
Fish Meal, Oil, and Solubles:
22 . Major Indicators for U. S. Supply, April 1962
23 . U. S. Production, April 1962
23 . U. S. Production, March 1962
24 . Imports and Exports, February and March 1962
Maine:
25 . Fishery Landings, 1961
Maine Sardines:
26 . Canners Await Arrival of 1962 Runs of Fish Maryland:
26 . Fishery Landings, 1961

Contents continued page II.

CONTENTS (CONTINUED)

Page	Page
TRENDS AND DEVELOPMENTS (Contd.):	
Massachusetts:	
27 . .	Fishery Landings, 1961
27 . .	New Law for Imported Products
Michigan:	
28 . .	Lake Trout Egg Surplus Expected
National Fisheries Institute:	
28 . .	Annual Convention in New Orleans
New Jersey:	
32 . .	Fishery Landings, 1961
North Atlantic Fisheries Exploration and Gear Research:	
32 . .	Midwater Trawl Gear Tested
33 . .	Midwater Trawl Tested in Fishing for Ocean Perch
North Atlantic Fisheries Investigations:	
33 . .	Distribution and Abundance of Sea Scallops on Georges Bank Studied
North Pacific Exploratory Fishery Program:	
34 . .	Marine Fauna Off Columbia River to be Sampled
Oceanography:	
34 . .	First Folio of North Atlantic Marine Environment Serial Atlas
Oregon:	
35 . .	Silver Salmon Fry Released in Luckiamute River
Pollution:	
36 . .	Resistance of Fish to Refinery Wastes to be Studied
Rhode Island:	
36 . .	Fishery Landings, 1961
Sharks:	
36 . .	Tagging Program on Tropical Pacific Species
Shrimp:	
37 . .	United States Shrimp Supply Indicators, May 1962
Sport Fishing:	
37 . .	Skin Divers Take Marine Fish Census
Storm Damage:	
37 . .	Atlantic Coast Area Damaged by High Tides
Turtles:	
40 . .	United States Navy Plants Green Turtles in Caribbean
U. S. Foreign Trade:	
41 . .	Edible Fishery Products, March 1962
42 . .	Imports of Canned Tuna in Brine Under Quota
U. S. Fishing Vessels:	
42 . .	Documentations Issued and Cancelled, April 1962
Vessels:	
42 . .	New Research Vessel Launched for Fish and Wildlife Service
Virginia:	
43 . .	Study of Effects of Industrial Hot Water Discharges on Marine Environment
Washington:	
43 . .	Another Salmon Fish Farm Goes Into Production
44 . .	Wholesale Prices, May 1962
FOREIGN:	
International:	
Northwest Atlantic Fisheries Commission:	
46 . .	Standing Committee on Research and Statistics Meets
FOREIGN (Contd.):	
International (Contd.):	
International Northwest Pacific Fisheries Commission:	
46 . .	Japan-Soviet Fishery Negotiations Deadlocked on Salmon Regulatory Area Issue
46 . .	Japanese Send Top Official to Moscow in Attempt to Break Deadlocked Fishery Talks
47 . .	Japanese and Soviets Reach Agreement on North Pacific Salmon Areas and Catch Quotas
International Pacific Salmon Fisheries Commission:	
47 . .	Sockeye and Pink Salmon Studies
49 . .	Three Nations Studying North Pacific Salmon Migrations
Europe:	
49 . .	New Organization Made Up of European Fish Producers' Organizations
European Economic Community:	
49 . .	Second Acceleration in Timetable for Establishment of Customs Union
European Trade Fairs:	
50 . .	United States Food-Processing Industry Invited to Sell at Trade Fairs
Oceanography:	
51 . .	Indian Ocean Expedition
51 . .	Latin America Oceanography and Marine Research
Inter-American Tropical Tuna Commission:	
52 . .	Meeting for 1962
Aden:	
53 . .	Fisheries Department Trying to Develop Fishing Industry
Angola:	
53 . .	New Fishery Enterprise Planned
Australia:	
53 . .	Canned Tuna Imports
Brazil:	
54 . .	"Manjuba" or Anchovy Fishery of Southern Brazil, by Hitoshi Nomura
British Guiana:	
55 . .	Fishery Trends, 1961
British West Indies:	
57 . .	Barbados Fishing Industry
57 . .	St. Vincent Fishery Landings, 1961
Canada:	
57 . .	Nylon Gill Nets for Cod Fishing Perform Well
58 . .	Gill-Net Instructions Included in Prince Edward Island Fishermen's Courses
59 . .	Government Supplies Bait-Holding Units for Newfoundland
Colombia:	
59 . .	Licenses for United States Commercial Fishing Vessels
Denmark:	
60 . .	Fish Fillets and Blocks and Fishery Industrial Products Exports, March 1962
60 . .	Fourth International Fisheries Trade Fair
Dominica:	
61 . .	Tuna Fishing Season
Ecuador:	
61 . .	Proposed Decree Would Restrict Fishing by Tuna Purse Seiners off Coast

Contents continued page III.

CONTENTS (CONTINUED)

Page	Page
FOREIGN (Contd.):	
Faroe Islands:	
61 . .	British Ready to Discuss Fishing Limits with Danes
Fiji Islands:	
61 . .	Final Arrangements for Proposed Tuna Base Construction of Tuna Base
France:	
62 . .	Tuna Industry, 1961
62 . .	Frozen Tuna Imports Authorized
63 . .	Fishery Trends, First Quarter 1962
German Federal Republic:	
63 . .	Fishing Trawlers Recruiting Men in Ireland
63 . .	Plastic Containers for Unloading Fish at Dockside
Ghana:	
64 . .	Japanese Tuna Vessels Dispatched to Ghana
Greenland:	
64 . .	Shrimp Canning and Exports
Guatemala:	
64 . .	Shrimp Fishing Expanding at Pacific Coast Ports
Guinea:	
65 . .	Fishery Trends
Honduras:	
65 . .	Shrimp Landings Decline in 1961
Iceland:	
65 . .	Fisheries Trends, April 1962
66 . .	Exports of Fishery Products, 1960-61
66 . .	Exports of Selected Fishery Products, January-February 1962
67 . .	Exports of Fishery Products, January-March 1962
67 . .	Herring Season Good
68 . .	Herring Exported to Norway for Reduction
68 . .	Utilization of Fishery Landings, January 1962
Indonesia:	
68 . .	Japanese Negotiations to Establish Tuna Base Continue
Italy:	
68 . .	Plans Reported to Restrict Frozen Tuna Imports
Ivory Coast:	
69 . .	Japanese Tuna Vessels to be Placed Under Ivory Coast Registry
Jamaica:	
69 . .	Tuna Landed in November-December 1961
Japan:	
70 . .	Pack and Shipments of Canned Tuna in Brine for Export to United States
70 . .	Canned Tuna, in Brine Export Prices Raised
70 . .	Canned Tuna in Brine Fifth Export Sale to U. S. Exceeds Quota
71 . .	Canned Tuna in Brine Market Survey in Mid-western United States
72 . .	Tuna Landings at Yaizu, April 1962
72 . .	Prospects for Skipjack and Albacore Tuna Fishing off Japan
73 . .	Skipjack and Albacore Fishery Trends, May 1962
73 . .	Summer Albacore Tuna Season Starts
74 . .	Summer Albacore Tuna Landings as of Mid-May 1962
74 . .	Frozen Tuna Prices Reported Firm
74 . .	Adjustments Proposed in Frozen Tuna Export Quotas to Europe and Africa
75 . .	Atlantic Tuna Fishery Trends, First Quarter 1962
FOREIGN (Contd.):	
Japan (Contd.):	
75 . .	Atlantic Ocean Tuna Fishing Improves
75 . .	Tuna Mothership Fleets Scheduled to Depart for Fishing Grounds
76 . .	Catches by Tuna Mothership Fleets in the Pacific Ocean, 1961
76 . .	Tuna Mothership Regulations Under Study
76 . .	Japanese Recover American-Tagged Albacore Tuna
76 . .	Tuna Vessel Size Classification to be Eliminated
77 . .	Loans Proposed for Construction of Tuna Vessels
77 . .	Firm Plans Tuna Fishing from American Samoan Base
77 . .	Japanese-United States Tuna Meeting Proposed
78 . .	Fisheries Agency Views on Use of Small Tuna Vessels at Overseas Bases
78 . .	Tuna Federation Opposes Tuna Vessel Tonnage Increase
79 . .	Year-Round Tuna Fishing Licenses Granted to Former Salmon Fishing Vessels
79 . .	Fisheries Agency Considering Plans to Authorize Displaced Salmon Vessels to Fish for Tuna
79 . .	Government Issues Regulations on Displaced Salmon Vessels Planning to Fish Tuna
80 . .	Salmon Fleet Begins Fishing in Waters South of 45° N. Latitude
80 . .	Composition of Salmon Mothership Fleet
80 . .	Salmon Industry Restrictions on Use of Gill Nets by Mothership Fleets
81 . .	Salmon Industry's Views of North Pacific Fisheries Convention
81 . .	Firm Expanding Fish Meal Operations off Angola
82 . .	Exports of Principal Canned Fishery Products, 1961
82 . .	Exports of Selected Fishery Products, 1961
82 . .	Japanese Firm Seeks to Operate Trawler in North Atlantic
83 . .	Government to Protest Seizure of Fishing Vessels off Alaska
83 . .	Fishing Activities in Bering Sea
84 . .	Japanese Minister Discusses Kelp Utilization with Premier Khrushchev
84 . .	Fishing Companies Interested in Building Fish Sausage Plants Abroad
Republic of Korea:	
84 . .	Firm Obtains Loan to Build Six Tuna Vessels
84 . .	Italian Proposal to Expand Korea's Fishing Fleet
85 . .	Fishing Cooperatives
Malagasy Republic:	
85 . .	Fishery Agreement with Republic of China Being Considered
Malaya:	
85 . .	Frozen Tuna Transshipments to United States from Penang Base
86 . .	Ex-Vessel Tuna Prices at Penang
Mauritania:	
86 . .	Spiny Lobster Industry
Mexico:	
86 . .	Shrimp Landings, 1961
Morocco:	
87 . .	Fishery Trends, First Quarter 1962

CONTENTS (CONTINUED)

Page	FOREIGN (Contd.):	Page	FOREIGN (Contd.):
	Netherlands:		U.S.S.R. (Contd.):
87 . .	Final Results of Antarctic Whaling Expedition	104 . .	Far East Canned Fish Pack
	Nicaragua:	104 . .	Saury Fishery in Far East Being Expanded
87 . .	Shrimp Industry Trends, First Quarter 1962	104 . .	Number of Men Whaling in Antarctic In-creased
88 . .	Shrimp and Lobster Fishery Trends on At-lantic Coast	104 . .	Four Fish-Freezing Motherships to be Built
	Norway:	104 . .	in Denmark
88 . .	Fish-Freezing Plants Sales, 1961	104 . .	Soviet-Vietnamese Cooperation in Fishery
88 . .	Three-Nation Firm to Take Over Fish Freez-ing Plant in North Norway	104 . .	Research
89 . .	Prohibition Urged on Foreign Fishery Land-ings and Processing	104 . .	Oceanographic Activities in Northern Euro-pean Seas, 1962
89 . .	Firm to Produce Fish Flour	105 . .	United Arab Republic (Egypt):
89 . .	Herring and Cod Fisheries Trends	105 . .	Status of Fisheries
	Peru:	105 . .	United Kingdom:
90 . .	Fish Oil Industry Trends	105 . .	Fishing Limit Zone of 12 Miles May be
91 . .	Fish Meal and Oil Industry Trends, First	105 . .	Adopted
	Quarter 1962		Electronic Thawing of Frozen Fish
91 . .	Philippines:		FEDERAL ACTIONS:
	Joint Japanese-Philippine Tuna Enterprise		Department of Health, Education, and Welfare:
	to be Formed		Food and Drug Administration:
92 . .	Poland:	107 . .	Hearing Examiner Designated for Public
	Marine Fisheries Trends		Hearing on Standard of Identity for Fish
93 . .	Portugal:	107 . .	Flour
	Canned Tuna Industry	107 . .	Public Hearing Postponed on Standard of
93 . .	Saudi Arabia:		Identity for Fish Flour
	Fisheries Potential		Department of the Interior:
93 . .	South Africa Republic and South-West Africa:		Fish and Wildlife Service:
94 . .	Pilchard-Maasbunker Fishery Trends, March		Bureau of Commercial Fisheries.
	1962	107 . .	New Fees for Fishery Products Inspection
95 . .	Fish Meal and Oil Industry, 1960/61 Season	109 . .	Services
95 . .	South Africa Republic:		Processor Accountable for Removal of
96 . .	Pilchard-Maasbunker Fishery, January 1962		USDA Shields from Mislabeled Fishery
96 . .	South-West Africa:		Products Packages
97 . .	Pilchard-Maasbunker Catch Quota for 1962	109 . .	Department of State:
	Increased		Trade Agreement Concessions Effective July
97 . .	Spain:		1, 1962
	Frozen Tuna Exports to Italy	110 . .	White House:
97 . .	Canned Tuna Industry		President Puts Into Effect Results of 1960-61
98 . .	Vigo Fisheries Trends, First Quarter 1962		GATT Negotiations
98 . .	Tahiti:	110 . .	Eighty-Seventh Congress (Second Session)
98 . .	Progress of Tuna Base Plan		FISHERY INDICATORS:
99 . .	Taiwan:	115 . .	Chart 1 - Fishery Landings for Selected States
99 . .	Tuna Fishing Vessels Added to Fleet	116 . .	Chart 2 - Landings for Selected Fisheries
99 . .	U.S.S.R.:	117 . .	Chart 3 - Cold-Storage Holdings and Freezings
99 . .	Soviet Fishing on Georges Bank in North At-lantic, April and May 1962	118 . .	of Fishery Products
99 . .	Herring Fishing in North Atlantic		Chart 4 - Receipts and Cold-Storage Holdings
100 . .	Fishing in South Atlantic off South-West		of Fishery Products at Principal Distribution
	Africa		Centers
101 . .	New Vessels for Atlantic Fisheries	118 . .	Chart 5 - Fish Meal and Oil Production - U. S.
101 . .	Research on Pacific Herring Migrations		and Alaska
101 . .	North Pacific Salmon Study	119 . .	Chart 6 - Canned Packs of Selected Fishery
101 . .	Fishing Activities in Bering Sea, April 1962		Products
101 . .	New Freezer-Trawler Fishing in Bering Sea	120 . .	Chart 7 - U. S. Fishery Products Imports
102 . .	Fish Production for Human Consumption		RECENT FISHERY PUBLICATIONS:
102 . .	Fisheries Developments in Far East	121 . .	Fish and Wildlife Service Publications
		124 . .	Miscellaneous Publications



COMMERCIAL FISHERIES REVIEW

July 1962

Washington 25, D. C.

Vol. 24, No. 7

CHICAGO RECEIPTS OF FRESH AND FROZEN FISHERY PRODUCTS, AND WHOLESALE MARKET TRENDS, 1961

By G. A. Albano*

SUMMARY

Receipts of fresh and frozen fish and shellfish at Chicago in 1961 amounted to slightly more than 78 million pounds. The 10-percent drop from the previous year was largely confined to fresh-water fish receipts which were lower for a number of lake and river species. The 1961 Great Lakes production probably would surpass the previous year, but this was only because of increased industrial fish landings. With few exceptions, the commercial food fish catch from the Great Lakes was expected to be lower for most of the higher-priced species, with the slack taken up or exceeded by several varieties not presently used as food fish.

Frozen salt-water fish receipts in 1961 at Chicago were lower for halibut, several varieties of domestically-produced groundfish fillets, whiting, and sablefish, but were up for a number of species including fresh and frozen red snapper, and frozen fillets and steaks of swordfish. The lower receipts of certain frozen ocean fish varieties was partly due to a drop in 1961 landings coupled with the increased trend toward prepared and semiprepared fishery products and specialties that gain more consumer acceptance each year.

Receipts of selected shellfish products at Chicago held up well in 1961. Despite the drastically reduced 1961 shrimp landings, receipts of frozen raw headless shrimp dropped only slightly from the previous year because of increased receipts of the imported product. Receipts of frozen breaded and other processed shrimp at Chicago reached a new record high in 1961.

Fresh-water fish receipts of nearly 33 million pounds in 1961 dropped 12 percent from the previous year. Leading species were whitefish, chubs, buffalofish, and yellow pike which ranked in about the same order as the previous year. Receipts were lower for practically

*Supervisory Market News Reporter, Fishery Market News Service, Division of Resource Development, U. S. Bureau of Commercial Fisheries, Chicago, Ill.

Note: Information on receipts of fishery products is based on data collected daily by the Chicago Fishery Market News Service Office from wholesale dealers (including smokers) and from other distributors in the Chicago area.

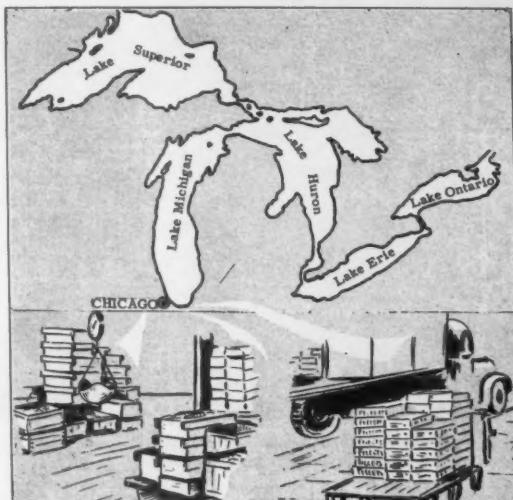


Fig. 1 - Chicago is an important distribution center for Great Lakes fresh-water fish as well as salt-water fishery products. For fishery products, it is the gateway to the Midwest.

all of the more choice fresh (iced) lake fish varieties, including lake trout, whitefish, and yellow pike. The year's receipts of those preferred and generally higher-priced species, however, did not decline as much as those of the coarse fish, which as a group dropped 20 percent from 1960. Receipts were much lower than the previous year for both carp and sheepshead varieties that now find much less consumer preference at Chicago. Buffalofish receipts of more than 4 million pounds dropped only slightly from the record high arrivals of 1960. Receipts of that species were unusually heavy in 1960, and while in the forefront during 1961, were displaced by chubs which were surpassed only by whitefish, a perennial favorite that still stands out as the mainstay of fresh-water fish supplies at Chicago.

Table 1 - Receipts of Fresh and Frozen Fish and Shellfish at Chicago, 1961-60 and Changes from 1960

Year	Fresh-Water Fish		Salt-Water Fish		Shellfish, Etc.		Total	
	1,000 Lbs.	% of Total	1,000 Lbs.	% of Total	1,000 Lbs.	% of Total	1,000 Lbs.	% of Total
1961	32,670	42	21,993	28	23,450	30	78,113	100
1960	37,012	43	25,635	29	24,380	28	87,027	100
Change from 1960	-4,342	-12	-3,642	-14	-930	-4	-8,914	-10

FRESH-WATER FISH

Chicago receipts in 1961 of a group of low- to moderately-priced lake fish, including chubs, herring, and smelt, were up from the previous year. The increase was principally due to larger receipts of chubs (more than 5 million pounds for the year, about 20 percent more than in 1960 and exceeding Chicago's receipts of that species for each year since 1957. The bigger

increase in the 1961 chub receipts was in deliveries from Michigan Lake Huron shippers, and a somewhat larger quantity from the Illinois commercial fishery. Despite the very good year in chub receipts, the fresh product was very scarce during the early months of 1961 when fishing was poor, and frozen stocks were nearly depleted. Low supplies and strong demand by smokers then resulted in the highest wholesale prices in several years. Fresh chub prices dropped sharply in the following months when landings started to improve.

Receipts of 1.6 million pounds of catfish were only slightly below 1960 arrivals. Receipts from Midwest-producing areas during 1961 were less than the previous year, but increased substantially from southern shippers who accounted for about 70 percent of the total catfish supplies received at Chicago. Receipts of catfish during 1961 were especially good



Fig. 2 - Iced domestic and Canadian fresh-water fish stacked up inside a wholesale fish house in the Chicago Fulton Market area.

from shippers in Florida, North Carolina, and Virginia, who have been supplying the Chicago market to a greater extent than formerly. The demand for catfish in the Midwest ranged from very good to excellent during a good part of 1961, with wholesale prices often equal to, or exceeding, those of the most choice lake fish varieties.

While fresh-water fish receipts were lower for a number of the more familiar lake and river varieties marketed as round, drawn, or dressed fish, there were moderate to good increases for frozen brook trout, frozen fillets of lake trout, whitefish, and yellow perch, frozen smelt and sturgeon, and iced white bass from Lake Erie. Fishery receipts from Lake Erie production were of no great significance in 1961 and iced finfish supplies were largely carp, sheepshead, white bass, smelt, and some catfish. Canadian supplies originating from that Lake were very good for frozen smelt and yellow perch fillets, but were down substan-

tially for round yellow perch. There were virtually no Lake Erie yellow pike available on the Chicago wholesale market.

Total receipts of round yellow perch from all sources compared favorably with 1960, but this was only because of increased supplies from Lake Michigan production and sizable gains in supplies from Canada's northern lakes. The demand and market conditions for round yellow perch and fresh or frozen fillets of that species were strongest during the early part of the year when wholesale prices were at their highest level because of extremely low supplies. Prices for round perch declined during the spring months when supplies increased, but again climbed to the higher level in midsummer when Great Lakes landings were light. Market conditions for frozen yellow perch fillets were very strong from the beginning of the year through August because of the scarcity of raw fish for filleting. Wholesale prices for any available stocks of frozen yellow perch fillets were unprecedently high throughout that period, but a sharp break occurred in September when lower-priced round fish were available for processing.

Table 2 - Chicago Fishery Products Receipts by Principal Species for 1961 and Percentage Change from 1960

Species	Quantity	Change from 1960	Species	Quantity	Change from 1960
	1,000 Lbs.	%		1,000 Lbs.	%
Fresh-water fish:					
Brook trout, frozen	381	+22	Cod, fresh ¹	10	0
Buffalo fish, fresh	4,404	-13	fillets, frozen	1,240	-19
Bullheads, fresh	158	-44	Flounder & sole, fresh ¹	35	-38
Carp, fresh	1,481	-37	fillets, frozen	1,205	+12
Catfish, fresh	1,551	-5	Fish sticks, frozen	1,189	-10
Chubs, fresh	5,076	+18	Haddock, fresh ¹	18	-44
Lake herring, fresh	1,433	-24	fillets, frozen	1,068	-22
Lake trout, fresh	726	-32	Halibut, frozen	5,083	-13
frozen ¹	616	+20	fil., stks., & portions, frozen	1,306	-18
Menominee, fresh	24	0	Mackerel, fresh	32	-30
Pickerel, fresh	379	-14	frozen	92	+119
frozen ¹	128	-51	Ocean perch fillets, frozen	4,713	-16
Rock bass, fresh	7	-36	Pollock fillets, frozen	122	-52
Sauger, fresh	519	-21	Sablefish, frozen	356	-20
frozen ¹	38	+217	Salmon, fall, frozen	521	+14
Sheepshead, fresh	1,540	-26	king, fresh	26	-33
Smelt, fresh	703	-23	frozen	428	-24
frozen	353	+24	pink, frozen	6	-82
Suckers, fresh	312	-26	silver, fresh	11	-39
Sunfish, fresh	152	-15	frozen	973	+24
Tullibee, fresh	96	-1	fillets & steaks, frozen	64	-63
Whitefish, fresh	158	+28	Sea bass, fresh	12	-25
frozen ¹	566	+24	Snapper, red, fresh	729	+3
Yellow perch, fresh	1,574	-13	frozen ¹	356	+21
frozen ¹	376	+32	Swordfish, fillets & steaks, frozen	203	+10
Yellow pike, fresh	2,862	-10	Whiting (H & G & fillets), frozen	1,482	-38
frozen ¹	290	-16	Wolffish fillets, frozen	458	-5
Other, fresh	96	-26	Other, fresh	200	-12
frozen	174	-40	frozen	55	-69
Total Fresh-water	32,670	-12	Total Salt-water	21,993	-14
Shellfish, etc.:					
Clams, hard (in shell)	502	-9	Shellfish, etc. (Contd.):		
Crabs, soft, fresh	26	-24	Scallops, frozen	936	-5
Dungeness (cooked), froz.	51	-39	Shrimp, raw, headless, frozen	9,460	-4
Crab meat, fresh	88	-2	breaded, etc., frozen	5,926	+5
frozen	199	-24	Spiny lobster tails, frozen	3,215	-12
Frog legs, frozen	236	-24	Squid, frozen	428	+116
Lobster (live)	182	+26	Other, fresh	98	-20
Oysters, in shell	788	-27	frozen	394	+3
shucked, fresh	816	-7	Total Shellfish, etc.	23,450	-4
frozen	105	-39	Grand Total	78,113	-10

¹/Includes fillets, steaks, etc.

Fresh and frozen yellow pike receipts at Chicago in 1961 amounted to slightly more than 3 million pounds, a 14-percent drop compared with 1960. The year's receipts of iced yellow pike were not much lower than in 1960, but there was a sharp drop in receipts of imported yellow pike fillets which was in part offset by a larger quantity of frozen drawn or dressed fish. Receipts of the iced product were quite substantial from Minnesota shipping points--Red Lake and the International Lakes region. Then there was nearly one million pounds from

Manitoba shippers--about the same quantity as the previous year--and good receipts from the Province of Alberta. The greatly reduced Lake Erie yellow pike landings were seen in the extremely light arrivals from Detroit wholesalers, and from Ohio and Ontario shippers. The upper peninsula provided little or no supplies of yellow pike during the year other than merely token deliveries that were far below the 1960 receipts from that area.

Yellow pike supplies at the Chicago market were readily available throughout the greater part of the year. Wholesale prices were high during the winter months but dropped to moderate levels with the appearance of seasonal supplies. Wholesale selling prices were especially low in June when market supplies were heavy, and declined even more during the fall months when supplies reached glut proportions.

SALT-WATER FISH

Fresh and frozen salt-water fish receipts of 22 million pounds in 1961 dropped for a number of species because of a decline in landings during the year. Landings in 1961 were lower for halibut, ocean perch, and whiting. Consequently receipts of those species at Chicago dropped. Frozen halibut again ranked as the principal species in that group at Chicago, followed by frozen ocean perch fillets, salmon, whiting, and various other frozen groundfish and other fillets both from domestic and foreign suppliers. Chicago has traditionally been a distribution center for frozen ocean fish fillets from New England, Canadian, and overseas suppliers. In 1961, however, Northwest packers of halibut, salmon, and sablefish shipped more Pacific ocean perch fillets and fillets of sole to Chicago. Receipts of frozen flounder and sole fillets were up from the previous year, standing out as a fishery product that was more readily available at low to moderate prices throughout most of the year, while other species of fillets were subject to periods of relative scarcity.

Frozen fish sticks, and fish portions in particular, were an important part of the Chicago supplies for the institutional trade during 1961. The demand for fish portions processed from species including halibut, swordfish, and red snapper, as well as from the various species of groundfish, has increased to the extent where frequently portion-control fishery products are preferred to regular fillets. Frozen groundfish fillets and halibut stocks were low at the beginning of 1961, and this resulted in increased sales of fish portions.

Supplies of most varieties of frozen salmon were much more abundant in 1961 as compared with the very light Northwest landings and low supplies of the previous year. The demand for frozen salmon at Chicago, however, was especially light during the early months of the year because of strong resistance to very high wholesale prices. Receipts of all varieties of frozen salmon in 1961 amounted to 2 million pounds which were about the same as in 1960. Much more frozen chum and coho salmon was received, but receipts were lower for frozen king (chinook) salmon and all varieties of the fresh product. The high 1960 frozen salmon prices at Chicago carried into 1961, but started to drop shortly after the beginning of the year. Prices continued their downward decline through the first half of the year. Wholesale selling prices for some varieties of frozen salmon dropped as much as 25 percent by the end of the first six months of 1961, a complete reversal of the strong and price-spiralling market during the same period the previous year. There was more buying interest in the last half of 1961 when market conditions improved to be a relatively steady level, and then firmed up considerably in the latter months of the year.



Fig. 3 - Portion of inside delivery room of wholesale firm in Chicago.

SHELLFISH

Chicago's shellfish receipts for the year were dominated by frozen shrimp and spiny lobster tails which combined accounted for 80 percent of the total 1961 receipts in that classi-

fication. Other leaders in that group included frozen sea scallop meats, fresh and frozen oyster meats, oysters in the shell, hard clams, and substantially increased receipts of frozen squid and live lobsters. New England suppliers provided the bulk of the live lobsters marketed at Chicago during the year. Receipts of that product from that region were more than double those in 1960, but were considerably lower from suppliers in the Canadian Maritime Provinces. But no doubt some of the live lobsters received from New England actually originated in Canada. The 1961 receipts of frozen scallop meats held near the one million pound mark, the same as in 1960. New Bedford landings of sea scallops during the year were even greater than in 1960--a banner catch year. Market conditions for that product were at a much more steady level during 1961. Wholesale selling prices at Chicago were lowest in July-August but did not drop to the lows of the same months in 1960 when market conditions for frozen sea scallops were nearly demoralized because of heavy supplies.

The notable increase in frozen squid receipts from West Coast shippers brought 1961 receipts up to nearly 0.5 million pounds. This was over 100 percent more than in 1960 and about the same as the 1959 receipts which were the highest in five years.

Market conditions at Chicago for other selected shellfish products were invariably strong during 1961, and wholesale selling prices for some items were believed at an all-time high. These included oysters which were in very short supply because of low production, spiny lobster tails which were even higher priced than in 1960 when preferred sizes were marketed at record high prices, and frozen shrimp. Because of low supplies, market conditions for frozen shrimp became progressively stronger during the last half of 1961 when wholesale selling prices were not far from the very high levels that prevailed in the years previous to 1959.

METHODS OF TRANSPORTATION

Truck transportation of fresh and frozen fishery products into the Chicago area during 1961 greatly outstripped other carriers. Rail express and rail freight carload arrivals of fresh and frozen fishery products for the year declined to 240 cars as compared with 320 carloads in 1960. The bigger and more pronounced drop was in car shipments from the Province of Alberta--only 19 cars in 1961 as against 78 in 1960 and 211 in 1959. The transition from rail express carload transportation to truck hauling of iced fresh-water fish was massive in the two-year period since 1959. Trucks hauled 85 percent of the more than 5 million pounds of fresh-water fish received at Chicago from the Province of Alberta during 1961.

Table 3 - Chicago Fishery Products Receipts by Methods of Transportation, 1961

Item	Truck		Express		Freight		Total	
	1,000 Lbs.	%	1,000 Lbs.	%	1,000 Lbs.	%	1,000 Lbs.	%
Total	60,979	100	7,770	100	9,364	100	78,113	100
<i>By Major Classifications:</i>								
Fresh-water	24,686	40	7,294	94	690	7	32,670	42
Salt-water	13,858	23	120	2	8,015	86	21,993	28
Shellfish, etc.	22,435	37	356	4	659	7	23,450	30
<i>By Origin:</i>								
Domestic	49,131	81	7,021	90	1,975	21	58,127	74
Imported ¹	11,848	19	749	10	7,389	79	19,986	26

¹/Includes "in bond" shipments through British Columbia of United States-caught fish landed in that Province, and also Alaska fish.

In 1961, rail freight continued as the traditional method in transporting frozen fishery products from the Northwest. A total of 209 carload shipments were made to Chicago from that region during the year. These were composed of frozen halibut, salmon, sablefish, and other species landed in the Pacific Northwest. Carloads from Arizona, consisting of Mexican west coast frozen shrimp, were up from the previous year--7 cars as against 5 cars in 1960. The bulk of the frozen shrimp shipped to Chicago through Arizona, however, was hauled by trucks. Five carloads of frozen fishery products, mostly groundfish fillets, were received from Nova Scotia in 1961 as against only one carload the year previous.

RECEIPTS BY MONTHS

Total monthly receipts at Chicago were at their peak in August when 8.5 million pounds were reported. The August receipts were outstanding for fresh-water fish--Canadian white-

fish, yellow pike, chubs, and buffalofish. Frozen salt-water fish receipts also were at a high level in August when ocean perch fillets, halibut, and whiting were relatively heavy. Monthly receipts again were substantial in October when fresh-water fish arrivals were near the 3-million-pound mark, and shellfish products receipts in that month were the highest for the year. Receipts were lowest in April because of extremely light frozen salt-water fish deliveries, and generally light fresh-water fish and shellfish products arrivals.

LAKE TROUT

Fresh and frozen lake trout receipts (including fillets) of 1.3 million pounds in 1961 did not decline to the same extent as the previous years. Fresh iced lake trout receipts were lower from all Lake Superior shipping points, and there was a drop in arrivals of the iced product from Canada's northwest lakes. The 1961 lake trout receipts from Canada of frozen dressed, drawn, and fillets, however, were up 20 percent from the previous year. This offset to some extent the more marked 30-percent drop in receipts of iced lake trout.

Chicago's lake trout receipts were extremely light during the first half of 1961. The local wholesale market was practically bare of any variety of lake trout during that period, and the small supplies of Canada-produced fish that were available commanded fancy prices. Market supplies improved slightly in July when wholesale prices were still maintained at the higher level. Lake trout became more readily available in August-September when receipts were quite good for both iced fish and the frozen products. Wholesale prices for lake trout

remained at the upper level during the greater part of the year with the average price for domestically-produced fish from Lake Superior higher than in 1960. The demand at Chicago for iced lake trout from Canada's northern lakes was exceptionally good in 1961. Wholesale market prices were highest during the first quarter of the year, and continued strong throughout the summer months. Prices for the Canadian product dropped briefly in September but did not decline to the extent as in the same month the previous year.

WHITEFISH

The 1961 receipts of fresh and frozen whitefish (including fillets) at Chicago amounted to more than 7 million pounds. The year's receipts comprised about one-fifth the total 1961 fresh-water fish arrivals. Whitefish continued to rank as the principal fresh-water fish variety marketed at Chicago. Canada-produced fish from the northwest lakes accounted for 88 percent of Chicago's total whitefish receipts while domestic Great Lakes shippers supplied the remainder. The percentage of receipts of domestically-produced whitefish was up from the previous year as a result of very good Great Lakes catches which turned out to be the best since 1957. In the first 11 months of 1961, United States Great Lakes whitefish landings totaled more than one million pounds, 36 percent more than landings in the full year of 1960. Whitefish landings for the period increased substantially at all lakes except Lake Erie. The increase in whitefish landings at Lake Michigan was especially large--about 200 percent more than in 1960. The 1961 iced whitefish receipts from domestic shippers of the Upper Peninsula of that State increased 40 percent from the previous year. Receipts of that species from Minnesota suppliers, however, were only half of those in 1960 because of the curtailed fall season at Red Lake.

Whitefish arrivals at Chicago, while quite good at the start of 1961, were somewhat erratic during the first four months of the year. Winter fishing in Canada provided moderate

Year	Lake Trout ^{1/}			Whitefish ^{1/}		
	Total Receipts	Percentage of Arrivals from:		Year	Totals Receipts	Percentage of Arrivals from:
		U. S.	Canada			
	1,000 Lbs.	%	%		1,000 Lbs.	%
1961	1,341	13	87	1961	7,064	12
1960	1,587	19	81	1960	8,065	11
1959	1,926	33	67	1959	8,246	14
1958	2,313	27	73	1958	8,900	14
1957	2,428	20	80	1957	8,069	14
1956	2,934	29	71	1956	7,712	23
1955	3,579	32	68	1955	8,820	21
1954	4,327	41	59	1954	9,710	29
1953	3,580	53	47	1953	9,014	37
1952	4,021	58	42	1952	10,179	35
1951	4,054	52	48	1951	9,774	29
10-year average	2,804	-	-	10-year average 1952-61	8,578	-
1952-61						

^{1/}Includes fresh, frozen, fillets, etc.

to good supplies until April-May when receipts were the lowest for the year. Receipts started to pick up in June when Canadian summer fishing operations got under way, and reached a high point in August-September when whitefish arrivals were the largest for the year.

Market conditions for Great Lakes whitefish were consistently strong during most of the year. Wholesale prices remained at the upper level but did not reach the Jewish Holiday high of 1960. The more abrupt price break for Great Lakes whitefish came in December 1961 when market prices were sharply reduced for a brief period. But prices again climbed to the higher level as the year closed. Prices for Canadian whitefish were somewhat lower than in 1960, but with wide variations which are not unique in the marketing and price structure of that product.

HALIBUT

Frozen halibut receipts at Chicago in 1961 continued to lead the salt-water fish group. The year's receipts of 6.4 million pounds (including fillets, steaks, and portions) declined from 1960 mainly because of the relative shortage of supplies from Northwest packers before the start of the 1961 Pacific halibut fishing season, and also because of the increasingly strong demand for fresh and frozen halibut in other parts of the country. Chicago's receipts during the year were lower for frozen dressed halibut from United States shippers, but increased substantially for Canada-produced fish shipped from British Columbia. Receipts of frozen halibut fillets and steaks were about the same as in 1960, but with some increase for frozen halibut portions which are now stocked by the majority of Chicago distributors.

Receipts of frozen halibut averaged one-half million pounds for each month during the first quarter of 1961, but dropped sharply in April (just before the new fishing season began in the North Pacific) when receipts were the lightest in several years. Inventories were then virtually depleted, and a number of Chicago distributors were completely out of supplies. New seasonal supplies accounted for greatly increased frozen halibut receipts in June when volume for that month climbed to nearly one million pounds. Monthly receipts were more evenly spread out during the last half of the year when they averaged better than one-half million pounds for each month. Market conditions for frozen halibut were steady to firm in 1961. Except for a brief decline in June, wholesale prices at Chicago advanced steadily until the year closed, averaging about 15 percent higher than in 1960.

SHRIMP

The United States shrimp industry in 1961 was faced with a number of problems including very low landings, natural disasters, and diminishing inventories. A newer development was the purchase of United States frozen shrimp by foreign buyers. The 1961 frozen shrimp receipts at Chicago, however, were not greatly affected by these developments. The year's total receipts of all frozen shrimp amounted to more than 15 million pounds--only one-half percent less than in 1960. A 4-percent drop in receipts of the raw headless product in 1961 was offset by the same percentage increase in receipts of breaded and other processed shrimp (total receipts of those products were 6 million pounds). Receipts of raw headless shrimp from Texas were only 5 percent below the previous year but were down sharply from Louisiana shipping points. The gap was filled by a 35-percent increase in receipts of Mexican west coast shrimp shipped through Arizona and California ports of entry.

Frozen shrimp receipts at Chicago by months were generally heavy at the beginning of 1961 when they averaged about 1.5 million pounds for each month through March. The April receipts fell off sharply to the low point for the year. The flow of supplies into the Chicago



Fig. 4 - Unloading halibut with a cargo net from a fishing vessel docked at Seattle, Wash.

market was moderate during the summer months, but again slumped in September when the effects of hurricane Carla were felt. Gulf Coast shrimp landings were up briefly thereafter resulting in October receipts at Chicago of nearly 2 million pounds. Monthly receipts of breaded and other processed shrimp averaged well over one-half million pounds a month and jumped to nearly twice that amount in August.

Market conditions for frozen shrimp at Chicago were mostly steady during the first half of 1961. There were signs of some uncertainty because of heavy inventories carried through March, but the effects were not significant and price fluctuations were small. The shrimp supply and market situation commenced changing swiftly about July when warehouse stocks started their rapid decline, and wholesale prices advanced to very high levels the remainder of the year.



BLUEFIN TUNA SWIMS 4,500 MILES IN 119 DAYS

A bluefin tuna of about 400 pounds was tagged at Cat Cay, Fla., on June 10, 1961, and recaptured on October 6, 1961, by a commercial seiner off Bergen, Norway; a distance of about 4,500 miles along the steamer routes. This amazing feat indicates that the tuna swam at an average speed of almost 40 miles per day, provided the fish started out the moment it was released off Florida and was caught the moment it arrived off Norway, and also provided that the tuna was keeping on a compass course with which not even the toughest second mate could find fault!

The bluefin tuna was tagged by the captain of the sportfisherman Caliban II. The captain together with his associate who is president of the International Game Fish Association) tagged 89 giant tuna in the cooperative game fish tagging program of the Woods Hole Oceanographic Institution.

A second tagged bluefin was recaptured off Bergen after 120 days of freedom. This fish was tagged on June 1, 1961, also off Cat Cay and was estimated then at 500 pounds. At re-capture on September 28, 1961, the fish weighed 484 pounds.

The Ocean Research Institute at Bergen, Norway, which reported both recoveries, stated that this late season there were many giant tuna in lean condition in the catches. In other late seasons the commercial catches also are occasionally mixed with very big tuna in bad condition. The fishermen call these fish "long-tailed tuna." The Institute speculated that these fish must be lean after their Atlantic migration during the feeding period. This second recovery seems to indicate that the first fish was not an isolated straggler.

Of the 1,000 bluefin tuna that have been marked through the fall of 1961 less than 100 were in the "giant" class (over 300 lbs.). Of the others, two 18-pound fish marked off No Mans Land in 1954 and 1957 were recaptured in the Bay of Biscay by French commercial fishermen in 1959 and weighed then about 150 pounds. One small tuna tagged off Chatham, Mass., in August 1957, was recaptured off Gloucester in August 1959. Another one tagged 320 miles off Ocean City, Md., on May 24, 1959, was taken commercially off Provincetown, Mass., on August 20, of the same year. Of interest also is the fact that of the 6 bluefin tuna originally tagged by sportfishermen, 4 were caught by commercial fishermen.

The return of the large bluefin from Norway may indicate a migration during the summer, whereas the tuna migrations generally are believed to take place in the spring and fall. Together with the returns from the Bay of Biscay it also indicates more strongly that western and eastern Atlantic tuna indeed do mingle. (Oceanus, December 1961, Woods Hole Oceanographic Institution.)



TRENDS AND DEVELOPMENTS

Air Freight

FRESH PACIFIC SALMON SHIPPED TO NEW YORK CITY BY AIR FREIGHT:

Air-freight speed, a newly-developed container, and a gelatin refrigerant are now putting fresh Pacific salmon on the New York City market up to eight days faster than other methods of transportation. It also shows that an eastern market exists for "ocean-fresh" shipments--even at 10- to 15-percent higher prices. The cost of air freight was reported as about \$17 a hundredweight as compared to \$13-15 a hundredweight for rail express in less than carload lots, depending on the weight of the shipment.

The "flying fish" plan was developed by an executive of a Burbank, Calif., airline. He first solved the problem of a fish container by using a laminate with a rigid core of foamed polystyrene. Waterproof, light in weight, and self-insulated, the container is sized for palletization and also serves as a convenient sales unit. Although inexpensive enough to throw away, it is durable enough to survive a number of trips if desired.

To overcome the bulk and the melting problems of ice, the airline simply eliminated ice entirely. In its place, a gelatin material frozen in polyethylene bags to a temperature lower than ice, but not low enough to freeze the fish was used.

On Monday, May 14, 1962, the daily "Fishery Products Report" of the New York Market News Service of the U. S. Bureau of Commercial Fisheries showed the following wholesale prices for fresh red king salmon from California: for fish shipped by air express, large some \$1.10, medium some 95 cents, and small some 85 cents a pound; for fish shipped by rail express, large some \$1.05 and medium some 90 cents a pound.



Alabama

FISHERY LANDINGS, 1961:

The Alabama commercial catch of fish and shellfish in 1961 amounted to 8.5 million pounds valued at \$2 million ex-vessel. Compared with the previous year, this was a drop of 30 percent in quantity and 34 percent in value. The 1961 shrimp catch was the lowest since 1949. Shrimp (heads-on), red snapper, mullet, blue crabs, oysters, and groupers comprised 92 percent of the year's total catch.



Shrimp trawler docked at Bayou La Batre. Trawl net is hung up to dry to prevent deterioration.

A marked decrease in shrimp landings (down 3.6 million pounds) was primarily responsible for the 1961 over-all drop. Failure of the shrimp crop and heavy oyster mortality placed the fishing communities in a serious economic condition. Due to a shortage of landings of principal species, shore facilities operated at a minimum, drastically reducing the earnings of plant employees. By the end of the year Federal aid was sought to alleviate the situation.

Blue crab landings totaled 838,000 pounds--up 68 percent compared with 1960. Increased effort was expended in that fishery due to the scarcity of shrimp and oysters. The crab meat market was weak during most of the year with processing plants operating on a small margin of profit.

Oyster production (508,000 pounds of meats, valued at \$162,000) dropped 661,000 pounds and \$155,000 below 1960. This sharp decline was primarily attributed to heavy mortality due to an influx of fresh water from flooded upstate areas in February.

The catch of fresh-water and salt-water finfish amounted to nearly 3,6 million pounds valued at \$628,000 ex-vessel. This was a gain of nearly 10 percent in quantity compared with the previous year. Red snapper (1.8 million pounds) accounted for 50 percent of the total finfish landings and 75 percent of the finfish value. Mullet was next in volume, accounting for 25 percent of the catch. Incidental catches of croaker, king whiting, white sea trout, and spot by shrimp trawlers registered substantial gains compared with the previous year.



Alaska Fisheries Exploration and Gear Research

PROGRAM FOR EXPLORATORY BOTTOM FISHING, 1962:

Proposed plans for exploratory fishing for bottomfish and other marine fish and shellfish were announced in April 1962. Four different cruises will be made with a chartered vessel by the staff of the Juneau Exploratory Fishing and Gear Research Base of the U. S. Bureau of Commercial Fisheries. Explorations are expected to begin July 1 and continue until late November. The Bureau's Auke Bay Biological Research Laboratory will participate in the cruises. Scientists from the Alaska Department of Fish and Game are also expected to be aboard.

Two separate six-week cruises are proposed in waters between Prince William Sound and Kodiak Island during July, August, and September. Work anticipated during the fall season includes two cruises in Southeastern Alaska.

Although general catch information primarily of interest to the commercial fishing industry is the major goal of the summer explorations, king crab data will be the main objective of the first survey, and shrimp data of the second survey.

The fall cruises suggested are preliminary to surveys that may later determine available quantities of commercial species. The third cruise of the year is planned as a trawl inventory of fish, the fourth as a survey to find where and how to catch commercial quantities of octopus, a halibut bait imported from Japan and now in diminishing supply.

This will be the third year of operation for the Bureau's Alaska Exploratory Fishing and Gear Research Base. In 1960, a single 35-day cruise with the Astoria, Oreg., trawler New Hope was made west of Craig, Alaska. In 1961 two cruises with the chartered trawler Tordenskjold, lasting four months, resulted in surveys of waters from Cape Spencer to Cape St. Elias and in Lower Cook Inlet.



Alaska Fisheries Investigations

SALMON FRY MIGRATIONS:

In Auke Creek near the Biological Research Laboratory of the U. S. Bureau of Commercial Fisheries, the pink salmon fry migration was nearing its peak in April 1962, and red and coho salmon fry migration had begun by the end of April. Fry migrations of all species were later this year than in 1961.

At Little Port Walter, sampling was completed of pre-emergent fry from the spawning areas. Over 6 million pink salmon fry survived the adult run of 30,000 fish last fall, representing an excellent winter survival. The largest fry migration in the 22-year history of the station was expected. Ten percent of the predicted migration had been counted by April 24, with about 160,000 fry migrating that night. Herring moved into the estuary and were feeding on pink salmon fry. It appears that predation by herring may be a major factor in the survival of Little Port Walter pink salmon.

In early April, Karluk Lake had an ice covering of only 13 inches and all tributaries entering the lake were free of ice. The fry



Enumerating pink salmon fry on their outmigration at Sashin Creek, Little Port Walter, in Southeastern Alaska.

counting stations at Grassy Point and Meadow Creek were set up on April 5 and April 7, respectively. Average nightly catches for the first five nights of fry trapping were 137 fry at Grassy Point and 153 at Meadow Creek. Results of staining and recovery tests indicated that the traps were taking from 14 to 23 percent of the migration. The fry migration at Grassy Point was earlier and of a greater magnitude this year than in 1961, probably due to warmer weather.

A pink salmon, tagged June 19, 1961, near Unimak Island of the Aleutian Chain by biologists of the Auke Bay Laboratory, was re-caught near Pakacha River in East Kamchatka, U.S.S.R., on August 8, 1961.

* * * * *

WESTERN ALASKA KING CRAB CATCH, FIRST QUARTER 1962:

The Alaska Department of Fish and Game reported that the king crab catch for Western Alaska (Peninsula, Chignik, and Aleutians) totaled 5,562,000 pounds for the first three months of 1962, compared with 3,697,000 pounds for the same period in 1961. This



Fig. 1 - Kodiak king crab haul, showing large average size of king crab.

was an increase of nearly 2 million pounds for the 1962 period. All of this increase was in the Aleutian area where 4,885,000 pounds were taken. Last year the catch for that area for January-March was 1,993,000 pounds.

Fishing effort in the vicinity of Adak has increased threefold over the 1961 season as vessels from the Peninsula-Chignik area moved out to take advantage of the excellent fishing. This change in fishing effort has been reflected in the decline in landings for the Peninsula-Chignik area. Last year the total for that area through March was 1,704,000 pounds; this year it was 677,000 pounds.

King crab were still available in the Peninsula-Chignik area in commercial quantities, but severe weather conditions and lack of effort are believed responsible for the lower catches. As of early April 1962, the Aleutian Islands fishery was not operating due to the soft-shell condition of the crabs. Fishing was expected to pick up again in July at Kachemak Bay. The fishery picked up due to improving weather conditions, but the molting season of the crabs began in April

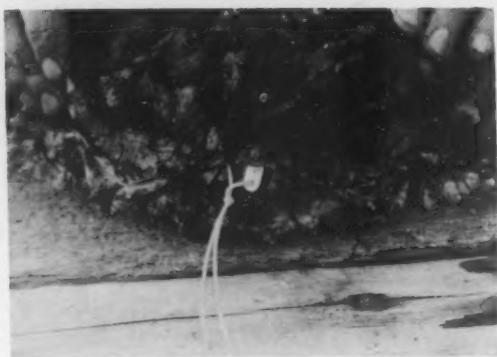


Fig. 2 - Method of tagging king crab for research purposes.

and this was expected to cause a temporary slump in the fishery there also.

* * * * *

HERRING FISHERY:

The herring arrived at Indian Point, near Juneau, Alaska, assuring a good supply for halibut bait and for local sport fishing. In addition, herring caught near the Sitka area were landed in Juneau. By State law, only one herring reduction plant (at Washington Bay) will be permitted to operate this year.



California

PELAGIC FISH POPULATION SURVEY CONTINUED:

M/V "Alaska" Cruise 62-A-1-Pelagic Fish: The Gulf of California from Mazatlan north to George's Bay on the mainland side; San Felipe south to Cape San Lucas on the Baja California side; and the Pacific coast of Baja California from Cresciente Island to Cedros Island were surveyed (February 19-March 29, 1962) by the California Department of Fish and Game research vessel Alaska. The objectives were (1) to obtain sardine samples from the Gulf of California for blood genetics and morphometric studies in order to distinguish the relationships of Gulf sardines to those on the Pacific Coast; (2) to sample Pacific mackerel and jack mackerel for age studies; and (3) to collect miscellaneous species and data requested by other investigations.

GULF OF CALIFORNIA: Sardines were collected throughout most of the Gulf. They ranged from newly-hatched larvae to large adults exceeding 200 mm. Nine samples of adults and juveniles and 10 samples of post-larval fish were netted. Sardine larvae were unusually abundant: of 29 samples containing clupeoid larvae most were tentatively identified as sardines. Sardines were attracted to the ship at night with a 1,500-watt light and then captured with the blanket net. Larvae were collected with a dip net.

U. S. Bureau of Commercial Fisheries personnel conducted serological tests on six samples of fish ranging from 85 to 200 mm. standard length. Those tests established that Gulf sardines constitute the third known, distinct, non-interbreeding, subpopulation. The other two subpopulations, designated as "northern" and "southern," occur off California and Baja California, Mexico.

The "Gulf" subpopulation was distinguished by the frequency with which a particular blood type (C+) showed up in standard tube agglutination tests. The C+ phenotype mean frequency was 18.0 percent for Gulf fish compared to 5.9 percent for the adjacent "southern" stock and 13.9 percent for "northern" sardines.

Information was obtained on sardine sizes and distribution in the Gulf. The relatively numerous samples collected over such a widespread area indicates a larger and more widely-distributed population than inferred from previous data.

Pacific mackerel, collected on seven stations, were all preserved for study ashore. No jack mackerel were captured or observed. Small samples of several anchovy species were collected in the southern Gulf.

An 8-ft. beam trawl was fished when time and bottom topography permitted. Depths of 10 to 50 fathoms yielded a variety of fish and invertebrates which were preserved for study ashore. A 25-fathom long beach seine was used for selected shoreline collections.

Three sets with deep-water traps were unsuccessful. One trap failed to return to the surface; one, an apparent delayed return, was subsequently recovered by Mexican citizens; and no catch was made with the third.

Annotated fathograms were made over sparsely sounded areas of the Gulf using a 0 to 6,000 fathom range EDO depth finder. All data were delivered to the U. S. Navy Hydrographic Office, Wilmington, Calif.

Approximately 1,300 feet of 16 mm. color movies and numerous still photographs were taken of cruise activities.

Sea surface temperatures ranged from 70° F. (21.1° C.) at Palmas Bay to 57.2° F. (14.0° C.) at Point San Fermin with most below 64° F. (18.05° C.). Good weather prevailed in the Gulf during most of the cruise.

PACIFIC COAST OF BAJA CALIFORNIA: Special effort was made to delineate the geographical boundary between the "Gulf" and the "southern" subpopulations of sardines. Adverse weather prevented work in the area between Cape San Lucas and Crescente Island. Sardines were collected on 3 of the 17 night-light stations north of there, however. One sample netted off Crescente Island was blood-typed and found typical of the "southern" subpopulation.

A special albacore trolling track was made near Guadalupe Island. Although sea-surface temperatures were favorable ranging between 60.8° F. (16° C.) and 66.2° F. (19° C.), no fish were caught.

Two exploratory beam trawl tows for hake were made off northern Baja California without results.

Airplane Spotting Flight 62-2-Pelagic Fish: The area from the United States-Mexican Border to Point Piedras Blancas, Calif., was surveyed from the air (February 21-22, 1962) by the Department's Cessna "182" 9042T to determine the distribution and abundance of pelagic fish schools. Good weather prevailed throughout the area.

Between Long Beach and Point Piedras, Calif., 319 anchovy schools were counted: 253 off Cambria Pines, 56 in Estero Bay, and 10 south of Pt. Mugu.

Between Long Beach and the United States Mexican Border, 5 sardine schools were observed between Newport and Oceanside. A few deep, small, unidentified spots were seen between Del Mar and Oceanside and some dim spots off La Jolla Pt. were probably jack mackerel or Pacific mackerel.

About 50 basking sharks, average length estimated at about 20 feet, were observed one mile off La Jolla Pt. There were four skin divers among them. Two of the divers were swimming up to the sharks or intercepting them and grabbing their dorsal fins. A grabbed shark would give the diver a brief ride before shaking him off. The other two divers seemed to be photographing the sharks.

Airplane Spotting Flight 62-3-Pelagic Fish: The survey to determine the distribution and abundance of inshore pelagic fish schools was continued (March 19-22, 1962) by the Department's Cessna "182" 9042T from Santa Cruz, Calif., to the United States-Mexican Border. Scouting conditions were only fair because of partial cloudiness.

Seven schools of what were probably Pacific mackerel were seen off Santa Monica and 15 anchovy schools were off Port Hueneme. Thirty-one gray whales were counted heading north.

Between Santa Monica and the United States-Mexican border, 35 anchovy schools were seen, all off Santa Monica. Thirteen gray whales were observed going north.

No fish schools were sighted from Pt. Sal to Santa Cruz, but an 8-ft. shark was just outside the surf at Oceano. The return trip was over Santa Monica at 7,000 feet. From that height, the anchovy schools in the bay were plainly visible. Some 50 anchovy schools, 7 Pacific mackerel schools, 56 gray whales and 1 shark were sighted.

Note: See *Commercial Fisheries Review*, May 1962 p. 14.

* * * * *

DOVER AND PETRALE SOLE TAGGING STUDIES:

M/V "N. B. Scofield" Cruise 62-S-3-Trawl: The coastal waters between Eureka, Calif., and Mack Arch, Oreg., were surveyed (April 4-May 3, 1962) by the California Department of Fish and Game research vessel N. B. Scofield to tag Dover and petrale soles (*Microstomus pacificus* and *Eopsetta jordani*), and to collect and preserve incidental specimens for other investigations. A 400-mesh Eastern-type otter trawl of 4½-inch mesh was used throughout the trip.

A total of 2,396 Dover sole were tagged and released in 45 to 136 fathoms. Over 90 percent were trawled in 70-125 fathoms.



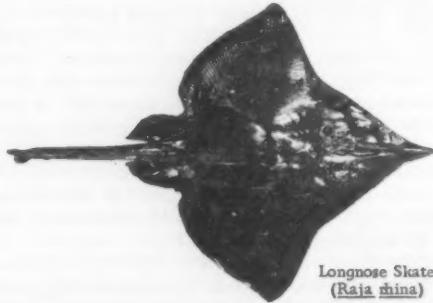
Petrale sole
(*Eopsetta jordani*)

Some 441 petrale sole were tagged and released in 41 to 124 fathoms. Over 75 percent had been taken in 50-74 fathoms. Tags used were the vinyl spaghetti-type. The tagging was a joint operation with the Oregon Fish Commission.

Primary objective of the program, which was coordinated by the Pacific Marine Fisheries Commission, is to obtain information on movements of the fish. This is part of a coastwide plan to determine if separate stocks of Dover and petrale sole exist along the Pacific coast, as a background to management programs for those fish which account for more than \$1 million annually to the commercial fishing industry.

Since it is essential that the fish tags find their way back to the biologists for this program to be successful, a one dollar reward will be paid for each of the tags returned to the Department of Fish and Game.

Several tags from both species were recovered by commercial vessels before the cruise was completed. Information obtained from these and other returns will add to the knowledge of population structure and seasonal distribution.



Longnose Skate
(*Raja rhina*)

Deep-water skates (*Raja* sp.) were collected for Scripps Institution of Oceanography

and invertebrates were saved for the Allan Hancock Foundation.

Live invertebrates and fish were delivered to Marineland of the Pacific, San Pedro, and the Shipwreck Aquarium, Eureka.

Note: See *Commercial Fisheries Review*, March 1961 p. 21.

* * * * *

HALIBUT AGE-WEIGHT-LENGTH RELATIONSHIPS STUDIED:

M/V "N. B. Scofield" Cruise 62-S-2-
California Halibut: The California Department of Fish and Game research vessel N. B. Scofield cruised (February 26-March 22, 1962) off the mainland coast of California from Seal Beach (Los Angeles County) to Naples (Santa Barbara County)--principally off Ventura in 11 to 15 fathoms. Objectives of the cruise were (1) to secure a sample of California halibut stratified by sex and length for determining age-weight-length relationships; (2) to determine the temperature profile on the trawling grounds; and (3) to secure a collection and/or a record of the fish, molluscs, and crustaceans found in association with halibut.



California halibut (left eyed)
(*Paralichthys californicus*)

A very satisfactory sample of California halibut was secured by trawling. The nets were an Eastern-type not specifically adapted for halibut. An estimated 1,000 halibut were caught. The otoliths and one of the pre-opercular bones were removed from about 500 of the fish.

Male halibut predominated in the catch of fish up to 20 inches. Males and females were in equal numbers between 20 and 22½ inches, but females outnumbered males in the larger sizes: as much as 21 to 1 for fish longer than 35 inches.

Temperature profiles taken with a bathy-thermograph at the beginning of each trawl showed that readings were about the same from top to bottom. Evidence of a thermocline was almost nonexistent.

Day-to-day temperatures varied about 2°, ranging between 51° and 53° F.

Trawls varied from 1 to 3 hours duration. Fish found in association with halibut were saved for Laboratory examination.

* * * * *

MIDWATER TRAWLING FOR SALMON FINGERLINGS CONTINUED:

M/V "Nautilus" Cruise 62N1g and 62N1h
Salmon: The midwater trawl operations of the California Department of Fish and Game research vessel Nautilus were continued (April 1-5, 15-19, 1962) in the Carquinez Strait to capture marked salmon fingerlings on their seaward migration. A nylon midwater trawl with 25-foot square opening was used.

Trawling in Carquinez Strait was conducted between 8 a.m. and 3 p.m. and each tow was for 20 minutes. All tows were alternated between upstream and downstream, and between the north shore, center, and south shore of the channel.

A total of 114 tows was completed in the Strait during the cruise yielding a total catch of 257 king salmon (Oncorhynchus tshawytscha). Forty-nine of the salmon were marked recoveries previously released in San Pablo Bay and at Rio Vista, Coleman Hatchery into Battle Creek, and Nimbus Hatchery into the American River.

Other species appearing in the catch consisted mostly of Pacific herring (Clupea pallasi)--54,980 fish, northern anchovy (Engraulis mordax)--7,849 fish, Sacramento smelt (Spirinchus thaleichthys)--2,167 fish, striped bass (Roccus saxatilis)--1,492 fish, American shad (Alosa sapidissima)--934 fish, king salmon (Oncorhynchus tshawytscha)--257 fish, mudsucker (Gillichthys mirabilis)--189 fish, staghorn sculpin (Lepidotocottus armatus)--137 fish, jacks melt (Atherinopsis californiensis)--100 fish, split-tail (Pogonichthys macrolepidotus)--79 fish, pipefish (Syngnathus griseo-lineatus)--61 fish, and surfsmelt (Hypomesus pretiosus)--45 fish.

Note: See Commercial Fisheries Review, June 1962 p. 7.



Central Pacific Fisheries Investigations

STUDY OF OCEAN CURRENTS IN CENTRAL PACIFIC:

A study of ocean currents in the central Pacific Ocean by means of drift bottles was started in January 1961 by the U. S. Bureau of Commercial Fisheries Biological Laboratory in Honolulu. This long-term study was designed to provide information on the changes which take place in the currents with season, and from year to year. Such information is vital to an understanding of conditions in the ocean itself, and of the effects of ocean currents on the abundance and distribution of important commercial fish species and the organisms which provide their supply of food.



During 1961 the Laboratory's research vessel, the Charles H. Gilbert, released about 8,000 drift bottles in five cruises. As of April 1962 about 5 percent of those bottles have been found, most of them on islands of the Hawaiian chain. This rate of returns is similar to that obtained in drift bottle studies in coastal areas of the United States and is surprisingly high considering the size of the inhabited coastline of the Islands in relation to that of the three million square mile area in which most of the bottles were released. The pattern of drift bottle returns shows interesting changes in the current patterns near the Hawaiian Islands at different times of the year. During the winter months, most of the bottles which came ashore were those released to the south and west of the Islands. Very few of the bottles dropped to the east and north of the Islands were recovered. In spring the bottles were carried somewhat to the west, but the major movement was still toward the north. Later in the year, the pattern of recoveries showed a pronounced westerly movement, with few recoveries from the south.

Although most of the recovered bottles traveled relatively short distances, in a large number of cases the bottles had been carried for distances of over a hundred miles, at speeds of about 10 miles per day or more. The record for distance, in the returns from the Hawaiian Islands, was 540 miles traveled between a release point south of French Frigate Shoals and the recovery at Lisianski Islands, in the leeward group of the Hawaiian chain; the bottle was recovered 58 days after release, and was carried at a minimum speed of 9 miles per day. The longest distance traveled by any of the drift bottles released by the Honolulu Laboratory was about 1,800 miles, from the release point near the Equator at the international date line, to New Ireland in the Bismarck Archipelago; this bottle traveled at a speed in excess of 27 miles per day over this distance.

An interesting and significant observation is the fact that, in many cases, several bottles from a single release have traveled considerable distances to wash ashore close together at about the same time. For example, 11 out of 40 bottles from one release in the western Pacific late in 1961 were found on Maiana Island, in the Gilberts, after traveling almost 300 miles. This implies that there is surprisingly little dispersion in the open ocean due to turbulent mixing, or that there is a mechanism, such as convergence of the surface waters, which tends to keep the drift bottles together as they move with the currents. In either case these findings are of interest to the physical oceanographer, but features such as large-scale surface convergences are of interest to the biologist and the fisherman as well, since they provide a possible mechanism for the concentration of plankton and forage organisms which tend to attract commercially-important fish species.

In the near future, the results obtained from drift bottles will be augmented by the use of drift cards released near the Hawaiian Islands from aircraft. Test releases of drift bottles from an airplane showed that more than 20 percent of the bottles break when hitting the water. As a result, releases from aircraft will consist of cards, similar to those now used inside bottles, but enclosed in plastic envelopes weighted along one edge, so that the cards will float in a vertical position and not be unduly influenced by the winds. Results for aircraft releases of drift cards near the Hawaiian Islands at intervals of about one month and the Charles H. Gilbert releases

of drift bottles at greater distances should add greatly to the meager knowledge of the surface currents in the central North Pacific.



Conservation

OCEAN FOOD RESOURCES MENTIONED BY PRESIDENT KENNEDY IN ADDRESS TO WHITE HOUSE CONFERENCE ON CONSERVATION:

The value of ocean food resources was mentioned in the address of President Kennedy to the White House Conference on Conservation on May 25, 1962, at Washington, D. C.

In part, the President said: ". . . In addition, we can make the most extraordinary gains in getting food from the ocean depths in the next 10 or 20 years. This question of oceanography has also occupied the attention of the Congress and this Administration, how we can double the amount of protein which is available to people around the world. This is a whole new area of conservation, unknown to those who preceded us but which is now coming into public understanding, as a result of your efforts and the efforts of others, and which can make the most profound difference to the lives of people who live rather listlessly because of inadequate proteins.

"So harnessing science to conservation is going to be the great contribution of our day. . . ."

* * * * *

FISHERY FIRM RECEIVES ONE OF SEVEN INTERIOR DEPARTMENT 1962 CONSERVATION SERVICE AWARDS:

Among the seven recipients of the 1962 Conservation Service Awards of the U. S. Department of the Interior was the Smith Research and Development Corporation Lewes Del., a subsidiary of a large menhaden fishery firm on the East Coast. In addition to that firm, a former United States Senator, a former governor, a citizen member of the Outdoor Recreation Resources Review Commission (ORRRC), two other leading conservationists, and one other private corporation were presented awards on May 25, 1962, in the Department's auditorium in Washington, D. C., by Interior Department Secretary Stewart L. Udall. The awards are made annually to private citizens and organizations for outstanding achievement in furthering the objectives of natural resource conservation programs.

Secretary Udall told Otis Smith, President of the Smith Research and Development Corporation, that his company "has rendered distinguished service in the cause of conservation. For a number of years, the Corporation has

striven to preserve the inshore environment which is essential to preserve some of the most valuable of our Atlantic fish and wildlife species. In 1961, you made available to the Department your scientific research vessel, the *Cape May*, and assumed all maintenance and operating cost, making possible the first systematic hydrographic survey of the continental shelf along the coast of New Jersey."

Also honored for impressive contributions in the field of conservation were: Honorable Joseph C. O'Mahoney of Wyoming, who served in the Senate for 25 years; Honorable Percival P. Baxter, former governor of Maine; Joseph W. Penfold, ORRRC member and conservation director of the Izaak Walton League; Don G. Fredericksen, Gooding, Idaho; M. D. Bryant, San Angelo, Texas; and the Phillips Petroleum Company, Bartlesville, Oklahoma.

Secretary Udall also presented a special plaque to Laurance S. Rockefeller, chairman of the Outdoor Recreation Resources Review Commission, for his continuing outstanding contributions to conservation. Rockefeller received the Department's Conservation Service Award in 1956.



Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-APRIL 1962:

Fresh and Frozen: For the use of the Armed Forces under the Department of Defense, more fresh and frozen fishery products was purchased in April 1962 by the Military Subsistence Supply Agency than in the previous month--the quantity purchased was up by 18.1 percent but the value of the purchases was up only 3.4 percent. This shows that lower-priced products were bought in April than in March because the value did not increase in the same proportion as the quantity. Compared with the same month a year earlier, April 1962 purchases were up 20.9 percent in quantity and 13.5 percent in value.

Table 1 - Fresh and Frozen Fishery Products Purchased by Defense Subsistence Supply Centers, April 1962 with Comparisons

QUANTITY				VALUE			
April	Jan. -Apr.	1962	1961	April	Jan. -Apr.	1962	1961
1962	1961	1962	1961	1962	1961	1962	1961
... (1,000 Lbs.) ...		... (\$1,000) ...					
2,300	1,902	7,088	7,069	1,121	988	3,995	3,535

During the first 4 months of 1962, purchases were up only 0.3 percent in quantity but 13.0 percent in value as compared with the same period in 1961. Evidently the greater increase in value is due to higher prices and the purchase of more higher-priced products.

Prices paid for fresh and frozen fishery products by the Department of Defense in

April 1962 averaged 48.7 cents a pound, about 6.9 cents less than the 55.6 cents paid in March 1962 and 3.2 cents less than the 51.9 cents a pound paid in the same month of 1961.

Table 2 - Canned Fishery Products Purchased by Defense Subsistence Supply Centers, April 1962 with Comparisons

Product	QUANTITY				VALUE			
	April	Jan. -Apr.	1962	1961	April	Jan. -Apr.	1962	1961
Tuna	563	1,297	3,676	2,662	301	572	2,040	1,175
Salmon	-	2	1,015	2	-	2	638	2
Sardine	1	21	11	81	1/	10	7	39
1/Less than \$1,000.								

Canned: Tuna was the principal canned fishery product purchased for the use of the Armed Forces during April this year. In the first 4 months of 1962, purchases of canned tuna and salmon were substantially greater than in the same period of 1961. But purchases of canned sardines were down because of the short packs of both Maine and California sardines during 1961. Purchases of the three principal canned fishery products (tuna, salmon, and sardines) in the first 4 months of 1962 were up 71.3 percent in quantity and 120.7 percent in value as compared to the same period in 1961. The higher value this year is accounted for by the purchase of more canned salmon.

Note: Armed Forces installations generally make some local purchases not included in the data given; actual total purchases are higher than indicated because local purchases are not obtainable.



Florida

FISHERIES RESEARCH, JANUARY-MARCH 1962:

Research on fisheries with funds provided by various sources is being carried on by the Marine Laboratory of the University of Miami. The research of interest to commercial fisheries which was reported in the Laboratory's March 1962 Salt Water Fisheries Newsletter follows:

Larval Shrimp: The spawning habits of the Tortugas pink shrimp are being studied under a contract with the U. S. Bureau of Commercial Fisheries. Landings of Tortugas shrimp were over 10 million pounds in 1961 and were valued at nearly \$5 million ex-vessel. This fishery, thus, provides the basic natural resource for an important

segment of the economy in fishing towns from Key West to Fort Myers.

Few shrimp larvae were spawned during the first three months of 1962. However, this corresponds with the usual low in spawning during the winter months.

The numbers of larvae reached a seasonal low in November. In December and January numbers of larvae were also low, but were slightly increased over November as a result of the presence of larvae at certain inshore stations. Bottom water temperatures declined to a low of 68°-72° F. in January. Numbers of larvae and also water temperatures increased in February and March. By April, large numbers of postlarvae had survived their first 3 weeks of life and were entering the nursery areas along the coasts of South Florida. Over 1,300 were collected there in a single 30-minute haul with a plankton net.

The growth rates of pink shrimp held in aquaria for 8 months have been slow during the recent winter period. These shrimp were captured when they were only $\frac{1}{4}$ inch in length; they grew to over 3 inches in length by April 1962. In recent months they molted about every 3 weeks. The body of a shrimp is covered by a hard outer skeleton which must be shed periodically so that growth can take place.

Ecology of Florida Bay: The prolonged drought in south Florida has had a marked effect on the salt content of the normally brackish-water bays, ponds, and creeks of southern Everglades Park. Marine conditions as of April extended far up the channels of the Shark, North, Watson, Roberts and East rivers. Salt kills of fresh-water bass and sunfish were reported in the upper reaches of the Shark River channel. The increase in salt content permitted re-entry of larvae of many species of marine fish and invertebrates into the Coot Bay-Whitewater Bay areas that had largely disappeared during the heavy rainfall period 1958-1960. Large numbers of juvenile shrimp, eels, anchovies, and spotted sea trout were collected in the plankton nets during the first three months of 1962.

Early in March, abnormally high tides brought about by a severe storm forced salt water far into the fresh-water zone, with appreciable salt recorded at Mahogany Hammock, Paurotis Pond, and Nine-mile Bend.

The salt intrusion due to the high tides crossed a belt of land approximately 15 miles in width all across the southern border of the Park. At Paurotis Pond large numbers of Carolina marsh clams, averaging about 1.5 inches in diameter, were killed by salt water approximately half the strength of sea water. Normally the water in Paurotis Pond is fresh. It may be expected that the drought will increase in severity through May, and with higher temperatures of spring increasing the evaporation rate, salt content of Florida Bay waters will increase. In past drought periods the salt content of Florida Bay off Flamingo has risen to double the strength of sea water. At that level, many animals are forced to move offshore to the normal salinity of the Gulf of Mexico.

Spotted Sea Trout: It is bad enough (from the point of view of the fish) that some fish are tagged once by biologists to study their behavior, but one sea trout was tagged twice. During 1960 a biologist from the Marine Laboratory tagged a sea trout near Fort Myers with an internal plastic tag. About a year later the same fish was caught again by a commercial fisherman hired to catch fish for tagging. Because the internal tag can not be found unless the fish are gutted, another cut was made in the body wall and the trout was tagged and released once more. A commercial fisherman caught the unfortunate fish for the third time about a year after the second tagging. He turned in the two tags and collected a double reward for the single fish. The trout had been recaptured only a few miles from where it had been tagged in the beginning.

Fish Behavior Studies: The National Science Foundation has awarded a grant of \$200,000 to the Institute of Marine Science for construction of a new fish behavior laboratory. This facility will enable scientists to study marine animals under conditions in which the various environmental factors can be controlled. It is expected that the facility will attract many visiting scientists from this and other countries since it will be the only laboratory of its kind in the country.

Precooked Frozen Shrimp Coated with Starch Gel: Work is continuing to determine quality changes of precooked frozen shrimp coated with a starch gel. Sensory tests and bacteriological analyses were performed after one month of frozen storage at -20° C. (-4° F.). Results of bacterial analyses revealed no bacterial growth since initial preparation.

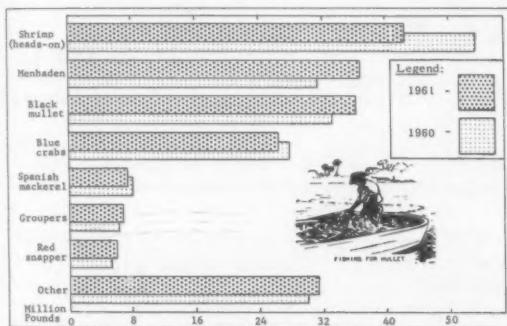
Effect of Freezing on Fish: Enzyme analyses for active amylase are being performed to determine the effect of freezing on fish. After one month of storage there appears to be no destruction of the amylase. Active hydrolysis was observed after incubating the samples at 37° C. (98.6° F.) for 24 hours, whereas at 25° C. (77° F.) for the same period of time negative hydrolysis was observed. Tests will be made following each month of storage.

Note: See Commercial Fisheries Review, May 1962 p. 17.

* * * * *

FISHERY LANDINGS, 1961:

Fish and shellfish landings at Florida ports during 1961 amounted to 190.2 million pounds with a value of \$25.7 million ex-vessel. Compared with 1960, this was a slight drop in both quantity and value.



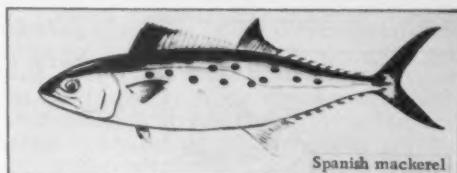
Florida's catch of certain fish and shellfish, 1961 and 1960.

The shrimp fishery experienced a poor season compared with 1960. A total of 42.1 million pounds of shrimp (heads-on) was landed at Florida ports during 1961--a decline of 9.2 million pounds from the previous year, and a drop in value of \$800,000. The average ex-vessel price in 1961 rose to slightly over 32 cents per pound (heads-on), or about 54 cents per pound (heads-off). Despite the reduced landings in 1961, shrimp was still caught in greater quantities and brought higher value ex-vessel than any other species of fish or shellfish.

Oysters were taken in record quantities (3.3 million pounds of meats) with a value of nearly \$1.5 million--a gain of 1.3 million pounds and \$557,000 above 1960. Demand and prices were good most of the year. Several new oyster firms began planting and cultivating oysters on both Florida's east and west coasts.

A good catch of menhaden occurred in 1961--36.3 million pounds. This was an increase of 5.1 million pounds above the previous year. There was a strong demand and good prices for fish meal and solubles.

Although blue crab production was down 1 million pounds compared with 1960, there were still 24.6 million pounds landed. This was the second highest blue crab production year in Florida's history--exceeded only by 1960. The reduced production was the result of more than usual cold or unfishable weather in the winter months.



Spanish mackerel

Black mullet ranked third in landings during 1961 with 35.6 million pounds--2.7 million pounds below last year. Spanish mackerel (7.1 million pounds) dropped over 571,000 pounds below 1960, while the catch of groupers (6.6 million pounds) was up 452,000 pounds.



Fur Seals

PRICES FOR ALASKA SEAL SKINS SET NEW RECORD AT SPRING AUCTION:

The spring 1962 auction sale of U. S. Government and other foreign-produced fur seal skins was held at St. Louis, Mo., on April 12-13, 1962. The attendance at the sale by fur dealers, brokers, and manufacturers was the best in many years; some 71 were present, including participants from Canada, Denmark, Great Britain, and Italy. The prices received for conventionally-processed Alaska seal skins established a new record--a grand average for all sizes and grades of \$106.80. A new high was also established for Lakota processed seal skins (natural sheared)--an average price of \$44.33 was received for all sizes and grades.

Sales for the United States-owned seal skins totaled \$2,027,346. The average price for 16,996 conventionally-processed seal skins sold for the account of the United States

was \$106.42, an advance of 27.7 percent over the fall sale in 1961. Average prices received for the various types of skins were: Black, \$108.00 (up 21 percent); Kitovi, \$101.23 (up 26.3 percent); and Matara, \$107.42 (up 37.4 percent). The average price of \$44.33 received for 4,664 Lakoda or sheared female skins represents an advance of 11 percent over the price received in the fall of 1961. A small number of low-quality sheared female skins withheld from earlier auctions were disposed of at this sale for an average price of \$13.57 per skin.

The fall auction of seal skins has tentatively been scheduled for October 25-26, 1962.

Note: See Commercial Fisheries Review, December 1961 p. 29.



Great Lakes Fisheries

Exploration and Gear Research

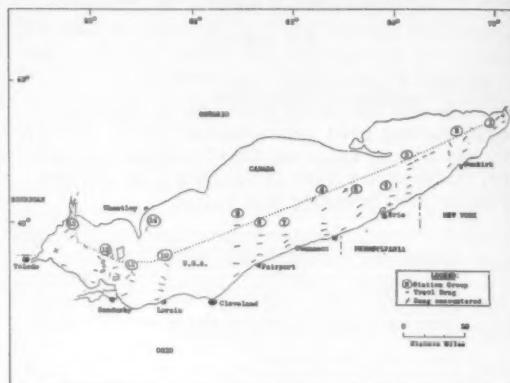
SEASONAL DISTRIBUTION STUDIES OF COMMERCIAL FISH STOCKS IN LAKE ERIE CONTINUED:

M/V "Kaho" Cruise 2: Four weeks of exploratory trawl fishing in Lake Erie were completed on May 20 by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Kaho. The objectives of the cruise were to continue studies of the bathymetric and seasonal distribution of various fish stocks and their availability to standard-type bottom trawls.



Recent addition to the Bureau's Great Lakes research fleet is the exploratory fishing and gear research vessel Kaho.

A total of 63 drags was completed (20 in the eastern basin, 27 in the central basin, and 16 in the western basin) at depths ranging from 3 to 32 fathoms. No commercially-significant quantities of smelt were taken, nor were other species taken in commercial quantity except for several moderate catches of yellow perch in the western basin. The normal seasonal inshore movement for spawning probably accounted for the general lack of fish concentrations in trawlable areas.



M/V Kaho Cruise 2, Lake Erie explorations.

The eastern basin was found to be nearly devoid of fish in trawlable areas except for a several-mile-long heavy midwater concentration recorded on the echo-sounder in the deepest area of Lake Erie near the junction of the international and New York-Pennsylvania boundaries. Gill nets set over much of the 5- to 10-fathom depth range in the eastern basin precluded sampling in otherwise trawlable areas. Bottom conditions in waters shallower than 7 fathoms were generally unsuitable for trawl fishing.

In the central basin, smelt catches of 130 pounds per hour were taken off Fairport, Ohio, at a depth of 13 fathoms; and 150 pounds at $7\frac{1}{2}$ fathoms off Lorain, Ohio. Shallow areas in the central basin were also generally not suited for trawling because of rough bottom conditions or the presence of gill nets and trap nets.

The western basin yielded significant catches of yellow perch: 220 pounds per hour at 7-fathom depths east of Kelleys Island; 410-480 pounds per hour at $5\frac{1}{2}$ to 8 fathoms east of South Bass Island; 130-140

pounds per hour at 5 fathoms west of Middle Bass Island; and 160-380 pounds per hour at depths of $3\frac{1}{2}$ to 5 fathoms west of the Middle and West Sister Islands.

Stomachs of 363 smelt from 10 areas were examined for content and eggs were present in 2 specimens. Most of the yellow perch taken in the western basin had completed spawning while perch from the other basins had not. Nearly all perch caught ranged in size from 7.5 to 8.5 inches and averaged 8.0 inches.

Surface temperatures ranged from 37.8° F. in the eastern basin to 76.5° F. in the western basin. Bathythermograph profiles revealed the water temperature to be homothermous in all areas visited except in the island area where a double thermocline existed.

Note: See Commercial Fisheries Review, March 1961 p. 26.



Great Lakes Fishery Investigations

LAKE ERIE FISH POPULATION SURVEY:

M/V "Musky II" (April 1962): Operations of the U. S. Bureau of Commercial Fisheries research vessel Musky II began in early April with visits to limnological and fishery stations at Sandusky Bay, Sand Point, East Harbor, Cedar Point, and east of Kelleys Island. Overnight sets of 300-foot lengths of experimental gill nets ($3\frac{1}{2}$ - to 5-inch mesh) were made at the latter two locations. Many sheepshead, and a few yellow perch, yellow pike (walleyes), carp, and white suckers were taken. Catches in two drags of a bottom trawl made at each of those stations averaged about 632 fish per tow in the open lake and 357 in Sandusky Bay. Principal species were yellow perch, spot-tail shiners, emerald shiners, and sheepshead.



Yellow perch

Yellow perch of the 1959-year-class continue to be the dominant species and age group. Especially large concentrations were found at the 8- to 10-foot depth in the East Harbor area. Males predominated; females

were more scattered and restricted largely to deeper waters offshore. These 3-year-old perch now range from about 6.6 to 9.3 inches in length; males average about 7.4 inches and females about 8.0 inches.

Unusually warm weather during April increased water temperatures from 38° to a high of 55° F. at the end of the month (approximately 9° higher than on the same date in 1961). Yellow pike spawning was all but completed by the end of April and yellow perch were fast approaching peak spawning activity.

Spring sampling of the commercial catch was begun at the major ports along the south shore. Sufficient scale collections were taken from the majority of the species desired, with the exception of blue pike. Commercial operators caught large numbers of perch, but many were undersize. Landings of yellow pike were considerably less than in April 1961.

Note: See Commercial Fisheries Review, June 1962 p. 17.



Great Lakes

YEARLING LAKE TROUT PLANTED IN LAKE SUPERIOR:

Nearly 1,760,000 yearling lake trout were released in Lake Superior during late May and early June in a continued effort to rejuvenate that Lake's sagging lake trout fishery. This spring's plantings were the largest made since the lake trout restocking program was started in 1959 under direction of the Great Lakes Fishery Commission.

State and Federal hatcheries in Michigan increased the number to 920,000 yearlings as compared with 560,000 last year. Ontario contributed 583,550 young lake trout to the rehabilitation program, while Wisconsin added another 256,000.

Latest lamprey control studies provide an encouraging note for lake trout survival under the stepped-up planting schedule. A sizable drop in the rate of fresh lamprey scarring on lake trout in different areas of Lake Superior has been reported. Also, only 88 lampreys had shown up at electrical weir barriers in Lake Superior streams through the end of April. A year ago,



Sea lamprey electrical barrier.

about 1,185 of those eel-like predators had been captured at the same barriers.

Michigan's plantings include 94,400 yearlings reared at that State's Conservation Department's Watersmeet Hatchery. They were set free offshore from Ontonagon. Another 70,000 lake trout were planted near Whitefish Bay from the Department's Harrietta Hatchery.

The spring schedule also called for planting 125,000 young trout in the Apostle Islands area where another release of that size will be repeated this fall. The Marquette-Munising area was due for a shoreline planting of 314,500 yearlings in late May or early June; another 315,500 trout will be turned loose at a Lake Superior site not yet determined. Stock for the plantings will come from the U. S. Fish and Wildlife Service hatchery at Pendills Creek.

Approximately 97,000 lake trout were trucked from the U. S. Fish and Wildlife Service hatchery at Charlevoix late in May for release in Lake Michigan. This was the last in a series of experimental plantings to learn more about the distribution, movements, and survival of hatchery trout in that Lake. (Michigan Department of Conservation, May 17, 1962.)



Industrial Products

FISH MEAL, OIL, AND SOLUBLES:

Major Indicators for U. S. Supply, April 1962: For the first three months of 1962,

Major Indicators for U. S. Supply of Fish Meal, Solubles, and Oil, April 1962

Item and Period	1962	1961	1960	1959	1958
(Short Tons)					
Fish Meal:					
<u>Production 1/:</u>					
June	-	53,162	44,293	52,006	30,949
May	-	32,922	17,194	25,312	17,433
April	7,000	6,179	5,076	6,810	5,143
Jan.-Mar.	7,086	7,556	7,146	7,345	6,518
Jan.-Dec. prelimin- ary tot. 2/.....	-	289,039	257,969	275,396	216,510
Jan.-Dec. final tot.	-	311,265	290,137	306,551	248,140
<u>Imports:</u>					
June	-	19,317	11,178	10,886	9,091
May	-	24,753	9,496	15,329	8,949
April	-	19,060	10,397	17,654	11,758
March	18,528	20,458	18,652	16,719	7,233
Jan.-Feb.	44,246	23,875	16,652	39,163	18,915
Jan.-Dec. totals.	-	217,845	131,561	132,955	100,352
(Short Tons)					
Fish Solubles:					
<u>Production 3/:</u>					
June	-	17,772	20,735	26,756	16,561
May	-	13,629	7,370	18,639	9,351
April	2,890	2,965	2,870	6,987	3,619
Jan.-Mar.	6,384	5,834	5,971	6,506	3,889
Jan.-Dec. totals.	-	112,241	98,929	165,359	130,177
<u>Imports:</u>					
June	-	207	149	202	137
May	-	283	59	4,874	1,405
April	-	220	184	1,622	45
March	308	135	87	410	84
Jan.-Feb.	2,522	374	2,089	1,387	622
Jan.-Dec. totals.	-	6,739	3,174	26,630	14,567
(1,000 Gallons)					
Fish Oil:					
<u>Production:</u>					
June	-	6,296	4,672	4,826	3,267
May	-	4,367	1,768	2,604	2,166
April	580	440	248	436	200
Jan.-Mar.	161	162	168	144	179
Jan.-Dec. prelimin- ary tot. 4/.....	-	33,471	26,690	24,418	21,625
Jan.-Dec. final tot.	-	34,416	27,986	24,978	22,028
<u>Exports:</u>					
June	-	280	208	1,514	242
May	-	426	324	1,455	293
April	-	980	761	1,116	254
March	-	753	421	600	1,664
Jan.-Feb.	2,954	4,121	3,453	1,897	1,863
Jan.-Dec. totals.	-	16,331	19,155	19,264	12,539

1/Does not include crab, shrimp, and misc. meals.

2/Preliminary data computed from monthly data. Fish meal production reported currently comprised 86 percent of the annual total for 1962, 90 percent for 1959, 89 percent for 1960, and 92 percent for 1961.

3/Includes homogenized fish.

4/Preliminary data computed from monthly data. Represents over 95 percent of the total production.

Note: Data for 1962 and 1961 are preliminary.

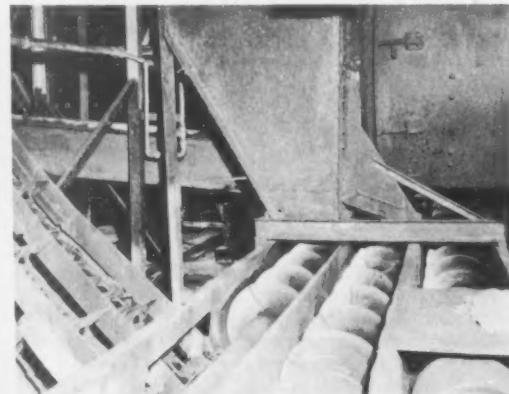


In some instances spotter planes are used in the Gulf of Mexico to spot schools of menhaden and to direct the setting of the purse seine. This bell-shaped loudspeaker helps to maintain radio contact between the spotter plane and the purse boats that set the net.

fish meal production was down, solubles production was up, and fish oil production was slightly less than in the same period of 1961.

* * * * *

U. S. Production, April 1962: Preliminary data on U. S. production of fish meal, oil, and solubles for April 1962 as collected by the U. S. Bureau of Commercial Fisheries and submitted to the International Association of Fish Meal Manufacturers are shown in the table.



Discharge end of hot-air dryer in an Empire (La.) menhaden products plant. Screw conveyor is used to transport the scrap.

U. S. Production ^{1/} of Fish Meal, Oil, and Solubles, April 1962 (Preliminary) with Comparisons				
Region	Meal Short Tons	Oil 1,000 Gallons	Solubles	Homog- enized
<u>April 1962:</u>				
East & Gulf Coasts . . .	4,861	486	939	3/425
West Coast ^{2/}	2,194	43	2,084	-
Total	7,055	529	3,023	425
Jan.-Apr. 1962 Total	14,638	719	7,769	655
Jan.-Apr. 1961 Total	13,735	601	7,187	633

^{1/} Does not include crab meal, shrimp meal, and liver oils.

^{2/} Includes Hawaii, American Samoa, and Puerto Rico.

^{3/} Includes condensed fish.

* * * * *

U. S. Production, March 1962: During March 1962, 2,500 tons of fish meal and scrap and 42,400 gallons of marine-animal oils were produced in the United States. Compared with March 1961, this was a decrease of 9 percent in meal and scrap production and 34 percent in oil.

In March 1962, tuna and mackerel accounted for 1,600 tons or 64 percent of the meal total, and 31,200 gallons or 74 percent of the oil production.

There were 1,800 tons of fish solubles produced in March 1962--583 tons below the same month in 1961. The production of homogenized condensed fish amounted to 100 tons--a decline of 78 tons compared with March 1961.

During the first three months of 1962, meal and scrap production amounted to 7,300



Heaps of scrap meal in the warehouse of an Empire (La.) menhaden products plant. When fishing is good, large quantities of scrap accumulate. This scrap is ground into fish meal.

Table 1 - U.S. Production of Fish Meal, Oil, and Solubles, March 1962 with Comparative Data

Product	March		Jan.-Mar.		Total
	1962 1/	1961	1962 1/	1961	1961
(Short Tons)					
<u>Fish Meal and Scrap:</u>					
Herring, Alaska	-	-	-	531	3,810
Menhaden 2/	-	-	689	-	247,551
Sardine, Pacific	-	-	-	-	2,518
Tuna and mackerel	1,596	1,972	4,524	4,852	21,243
Unclassified	899	779	2,080	2,162	16,215
Total	2,495	2,751	7,293	7,545	291,337
Shellfish and marine animal meal and scrap	3/	3/	3/	3/	19,928
Grand total meal and scrap	3/	3/	3/	3/	311,265
<u>Fish solubles</u>	1,803	2,386	4,876	5,556	100,551
Homogenized condensed fish	100	178	230	278	11,690
(Gallons)					
<u>Oil body:</u>					
Herring, Alaska	-	-	-	-	727,517
Menhaden 2/	-	-	-	-	31,355,570
Sardine, Pacific	-	-	19,111	-	86,167
Tuna and mackerel	31,182	48,840	105,894	100,748	762,509
Other (including whale)	11,197	15,167	62,944	73,549	1,477,042
Total oil	42,379	64,007	185,749	174,297	34,408,805

1/Preliminary data.

2/Includes a small quantity produced from thread herring.

3/Not available on a monthly basis.

tons--252 tons below the same period of 1961; the marine-animal oil yield totaled 185,700 gallons--a gain of 11,500 gallons.

* * * * *

Imports and Exports, February and March 1962: Imports of fish meal and scrap totaled 18,800 tons during February and 18,500 tons in March 1962. Imports during the first three months of 1962 amounted to 62,800

tons--an increase of 18,400 tons compared with the same period of 1961.

Exports of fish and fish-liver oils amounted to 21.6 million pounds in February and 19.2 million pounds during March 1962. A total of 41.3 million pounds of fish and fish-liver oils was exported during the first three months of 1962--up 4.8 million pounds as compared with 1961.

Table 2 - U. S. Foreign Trade in Selected Industrial Products, February and March 1962 with Comparative Data

Product	February		March		Jan.-Mar.		Total
	1/1962	1961	1/1962	1961	1/1962	1961	1961
(Short Tons)							
<u>Imports:</u>							
Fish meal and scrap	18,819	14,344	18,528	20,458	62,774	44,333	217,845
Fish solubles	2,249	155	308	135	2,830	509	6,739
(Gallons)							
Whale oil, sperm (crude and refined)	275,556	-	140,408	665,260	718,998	1,026,497	7,807,625
(Pounds)							
<u>Exports:</u>							
Fish and fish-liver oils	21,646,639	17,456,076	19,167,182	5,644,202	41,323,030	36,549,073	122,485,721
Whale and sperm oil	68,273	-	2,923	1,928	85,178	1,928	1,205,674

1/Preliminary data.

Maine

FISHERY LANDINGS, 1961:

Landings of fish and shellfish at Maine ports in 1961 amounted to 198 million pounds valued at \$19 million. Compared with 1960, this was a drop of 96.7 million pounds or 33 percent in volume, and \$1 million or 5 percent in value.



Fig. 1 - Baiting a lobster pot aboard a New England lobster boat.

Sea herring (54.5 million pounds) was nearly 98 million pounds below the production in 1960. Ocean perch (77.4 million pounds) accounted for a decrease of almost 1 million pounds. These two species made up 67 percent of the year's total catch. Landings of Maine lobsters (20.9 million pounds) dropped 3.1 million pounds below 1960, while whiting (14.1 million pounds) landings increased 3 million pounds.

Knox County led all counties in production with 76.1 million pounds. Cumberland County was second in volume with 74.5 million pounds, and Hancock County third with

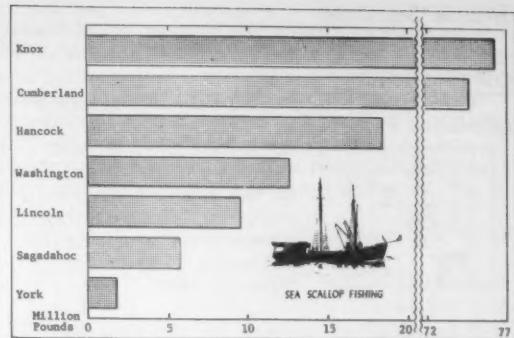


Fig. 2 - Landings at Maine ports by counties, 1961.

18.2 million pounds. Washington County accounted for 12.5 million pounds, while Lincoln, Sagadahoc, and York Counties contributed 9.4, 5.7, and 1.6 million pounds, respectively.

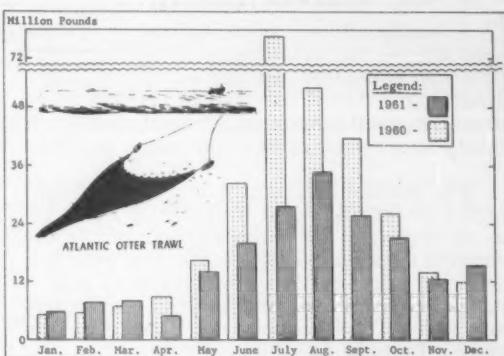


Fig. 3 - Landings at Maine ports by months, 1960-1961.

Landings in August were the highest of any month during the year with 34.3 million pounds. July was the second highest month in production with 27.3 million pounds. September followed with 25.9 million pounds, and October with 21 million pounds.

More than one-half of the 1961 catch was taken by otter trawls—101.6 million pounds. The remaining 96.4 million pounds were taken by several other types of gear.

Imports of Canadian sea herring through Maine ports during 1961 amounted to 43.5 million pounds—41 percent below 1960. Imports during the months of August, July, September, and January totaled 26.1 million pounds or 60 percent of the total imports in 1961.



Maine Sardines

CANNERS AWAIT ARRIVAL OF 1962 RUNS OF FISH:

With total production of only 15,541 cases of canned sardines from December 1, 1961, to April 7, 1962, and the lowest inventories in the history of the industry, Maine sardine canners are awaiting the expected 1962 heavy runs of fish.



If the average pattern for the past 14 years materializes, the tiny herring were expected to arrive in the inshore areas of Maine the latter part of May, although a full moon phase starting on the 19th was expected to delay good fishing conditions somewhat. The fish usually keep near the bottom in deep water during periods of light.

A total of 31 plants are in readiness for packing and the industry is in urgent need to replenish its stocks and to regain the shelf space that it has lost in several hundred thousand stores as a result of the critically short pack of 679,000 cases in 1961.

The Maine Legislature in a Special Session last fall extended the official April 15 to December 1 season to permit year-round canning on a temporary basis, but this has not been successful. Windy weather and rough seas for most of the winter and early spring have handicapped the fishermen despite efforts to fish.

If history is any criteria, there is no indication that the 1961 short pack should be repeated, according to the Executive Secretary of the Maine Sardine Council. He said that the industry had never had two critically bad fish years in a row since it was established in 1872.

Previous to 1961, the last such year was 1938 when production was less than 600,000 cases. However, the following year saw plenty of fish and a banner pack of 2,250,000 cases.

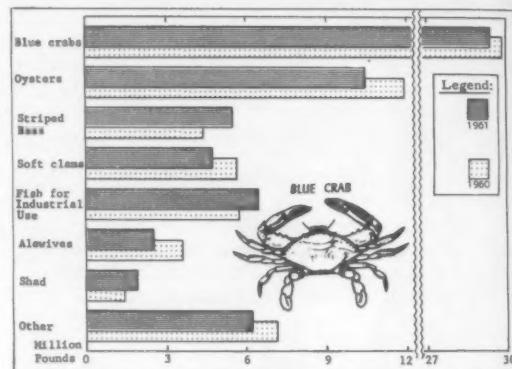
Holdings of canned Maine sardines by wholesalers and multi-unit retail organizations were down 45 percent from last year on April 1 and canners' inventories were down 91 percent.



Maryland

FISHERY LANDINGS, 1961:

Landings of fishery products at Maryland ports during 1961 amounted to nearly 66.5 million pounds valued at \$12.8 million. Compared with 1960, this was a drop of 4 percent in volume and 8 percent in value. Lower catches of oysters, alewives, fluke, spot, croaker, soft clams, and blue crabs were mainly the cause of the decline.



Maryland landings of certain species, 1961 and 1960.

Oyster production continued downward in 1961--1.4 million pounds below 1960. The 1961 calendar year oyster yield was the lowest for which data are available for Maryland.

Hard blue crab production of 26.7 million pounds dropped nearly 2 percent below 1960. Ex-vessel prices averaged \$3 to \$4 per barrel for "picking" crabs. Prices were low all season due to a good supply and lighter demand. Soft blue crab production dropped 3 percent below last year.

The 1961 soft clam catch (4.7 million pounds of meats) was 877,000 pounds below 1960. This was the first year the catch dropped since the fishery began in Maryland 10 years ago. The fishery is still suffering from a limited market. The State can produce more clams than can be sold. Ex-vessel prices averaged \$3 per bushel in most areas.

Hard clam production rose considerably during 1961, due mostly to the passage of a bill allowing the use of clam scrapes in Worcester County. The 1961 production of this item was 285,000 pounds of meats above 1960.

The finfish catch amounted to 21.4 million pounds in 1961--a gain of only 200,000 pounds as compared with 1960. Lower catches of alewives, spot, fluke, and croaker were offset by increased landings of striped bass, white perch, shad, and menhaden. The alewife catch (2.4 million pounds) and croaker catch (48,000 pounds) were the lowest of any year on record in Maryland. The previous low years were 1945 with 2.5 million pounds of alewives, and 1904 with 166,000 pounds of croaker. The spot catch (9,500 pounds) was the second lowest on record, exceeded only by the years 1897 and 1908 when only 3,000 pounds were reported. There were record high catches of striped bass, white perch, and cod. Striped bass landings (5.4 million pounds) were 1 million pounds above the previous record high year of 1960. The cod catch of 789,000 pounds was 243,000 pounds above the previous record year of 1960. The active cod fishery is relatively new to Maryland, having started in 1959 when, in the absence of dragger fish, some vessels fished with long lines. In 1961, there were 24 vessels engaged in long-line fishing.



Massachusetts

FISHERY LANDINGS, 1961:

Landings by fishing craft at Boston, Gloucester, New Bedford, and other Massachusetts ports in 1961 amounted to 431.6 million pounds valued at \$32.9 million. These landings dropped 12.3 million pounds or 3 percent in quantity, but were up \$1.1 million or 3 percent in value as compared with 1960.



Fig. 1 - A scallop fishing vessel docked at New Bedford, Mass.

During 1961, receipts at Gloucester comprised 38 percent of the total poundage and 18 percent of the total value. Boston was second in volume with 27 percent and value with 29 percent. New Bedford ranked third in volume with 23 percent, but first in value with 45 percent. Landings at other Massachusetts ports made up the remaining 12 percent in quantity and 8 percent in value.



Fig. 2 - Unloading a small dragger at the State Pier in Gloucester, Mass.

Landings in July were the highest of any month during 1961 with 62.2 million pounds. August was the second highest month with 60.9 million pounds, followed by May with 40.2 million pounds, October with 40.1 million pounds, and September with 37 million pounds.

* * * * *

NEW LAW FOR IMPORTED PRODUCTS:

A law regulating the sale, offering for sale, and advertising the sale of imported goods, including fish and fishery products, was enacted on March 12, 1962, by the Massachusetts State Legislature. The law is "Chap. 206, An Act Further Regulating the Sale or Offering for Sale and Advertising the Sale of Imported Goods, Fish and Fish Products."

Sellers of foreign goods, including scallops and fish and fish products, must now display in a conspicuous place, in letters at least as large as the figures indicating the price of the goods to be sold, a sign marked "Imported Goods." Likewise, goods having an individual price marking must bear either the words "Imported Goods" or show the country of origin.

Similar controls are placed on advertising; but in this instance, newspapers and radio and television stations furnishing an advertising medium for sale of goods or fish and fish products by another are not subject to penalty.

Violations are punishable by fine and/or imprisonment--\$50-100 for the first offense and \$50-500 or imprisonment for one month or both for each subsequent offense.



Michigan

LAKE TROUT EGG SURPLUS EXPECTED:

In a report of the meeting of the Lake Trout Rehabilitation Committee at Milwaukee, Wis., on March 6 and 7, 1962, it was brought out that the expected production of lake trout eggs at Michigan hatcheries will exceed the number that can be handled at existing State and National Fish Hatcheries in 1962 and 1963. It is estimated that Michigan State hatcheries at Marquette and Houghton will produce 8 million lake trout eggs in 1962; and even with a stepped-up rearing program at all participating State and national hatcheries, a surplus of 3 million eggs is expected.



Fig. 1 - The eggs are taken from the female, fertilized with the sperm or milt from the male, and transferred to the hatchery.

Original plans for the construction of the Jordan River, Mich., National Fish Hatchery anticipated the completion of facilities in time to absorb the 1963 increase in lake trout egg production. Apparently, the egg production program is one year ahead of schedule, and the completion of the Jordan River hatchery may be delayed until 1964 if adequate construction funds are not included in the 1963 appropriation. The 1963 budget, as



Fig. 2 - As the yolk sacs are absorbed, the young trout swim up from the bottom of the troughs and are fed diets of packinghouse byproducts; later, livestock feeds are added.

passed by the House of Representatives on March 20, 1962, included \$101,000 of the \$467,000 needed to complete the hatchery. It has been estimated by the Michigan Department of Conservation that there will be a surplus of 8 million lake trout eggs in the fall of 1963 if the Jordan River National Fish Hatchery is not in operation.



National Fisheries Institute

ANNUAL CONVENTION IN NEW ORLEANS:

The Seventeenth Annual Convention of the National Fisheries Institute (NFI), the trade association of the United States fishing industry, was held at the Roosevelt Hotel, New Orleans, La., April 27 through May 1, 1962. It was attended by about 700 producers, processors, and distributors of fishery products, involving consumer purchases of one billion dollars a year.

On April 27, the NFI Industrial Products Division met. The discussions centered around the 1962 fish meal, oil, and solubles production; the depressed fish oil market; and the standard of identity for fish protein concentrate as proposed by the U. S. Food and Drug Administration. On the same day there were executive and other committee meetings, including a Processed Shrimp Committee meeting. At the Shrimp meeting, the principal discussions were on a revision of the breaded shrimp standard; a proposed grade standard for frozen raw, peeled and deveined shrimp; and the pending standard of identity for breaded shrimp to be issued by the U. S. Food and Drug Administration.

The First General Session of the Convention, a Small Business Luncheon, and a Small Business Clinic were held on April 28. On Sunday, April 29, there were meetings of other local and national association groups and committees. Also, there was a meeting on Public Relations where the fishing industry's two major promotion programs were discussed: "National Fish in Seafood Parade" (the fall promotion) and "It's Fish in Seafood Time" (the Lenten promotion).

The Second and Third General Sessions of the Convention took place on Monday, April 30.

On Tuesday, May 1, the Seafood Radiation Pasteurization Committee met.

Among some of the other fishery associations that met during the convention were: the National Shrimp Breeders Association; the Board of Directors of the Shrimp Association of the Americas; the American Seafood Distributors Association; the Halibut Association of North America; and the Board of Directors of the National Shrimp Congress.

The U. S. Bureau of Commercial Fisheries Market News Service set up a temporary office together with a teletype. Each day the Convention was in session, information was received over the teletypewriter on current landings, receipts, prices, and market trends as transmitted by the Fishery Market News Service Field Offices throughout the country. A total of 1,200 visitors stopped at the temporary office to obtain information.

"The fishing industry should adopt principals, not policies," Dr. Noah Langdale told members of NFI in his address on April 30 at a general luncheon. Speaking on the subject of "Ethics and the Business Man," the speaker outlined the five elements of business--materials, money, machines, markets and man--and stressed the importance of good individual and collective motive as being essential to the continued progress of the industry. Langdale is President of Georgia State College.

Fishing Industry Seeks Greatly Expanded Sales: At the First General Session of the Convention on April 28, plans were revealed for greatly expanded sales during the next few years. Basing their optimism on the fact that 85 percent of the fishery products now available in retail stores were not even on the market ten years ago and also the fact that the per capita consumption of their products took a spurt upward in 1961 for the first time in ten years, the fisheries group was talking of still more new processing methods. Some were predicting that the next ten years would see as radical changes as the past ten when pre-cooked and portioned products made their appearance.

The keynote of the group's outlook was sounded by Harvey H. Bundy, Jr., Boston, President of the Institute, in his opening speech.

"For the first time in the last ten years, there has been a substantial improvement in the per capita consumption of fish and seafood in the United States. When this is superimposed on the normal population increase and the resulting increase in our sales, it foretells substantial growth for our industry," he said.

"A significant factor in this increased consumption has been a growing recognition of the healthful qualities of our products. Medical authorities, like Dr. Fredrick Stare, Director of Public Health, Harvard University, have indicated that we Americans would be well advised to increase the amount of fish and seafood we consume," Bundy said.

He called for more liberal tariff regulations and federal subsidies to enable the American seafood producers to compete with overseas fishing boat builders. He also indicated that the industry is encouraging the develop-

ment of a national fisheries center in Washington and is asking governmental permission to sell fish flour as a food for human consumption. Presently such flour cannot be offered for sale for human consumption under rules of the Federal Food and Drug Administration.

Fishery Products a Dynamic and Profit Opportunity: A national shipping executive called on the fishing industry to allot more funds for expanded nutritional and medical research programs on fish and fish products for a healthier America and a healthier economy for the industry. In an address on April 28 at the First General Session of the Convention, he emphasized that these expanded nutritional research projects must be well planned, well sponsored, and when completed and analyzed "the whole industry must support them in promoting them to the public." He also called upon representatives of the fishing industry and the industry itself to increase their advertising budgets to sell more of their products to meet the "increased competition for the food dollar."

Government Aid For Small Business: "We are eager to help small firms of your industry," John E. Horne, Administrator of the U. S. Small Business Administration (SBA), told members of the Institute on April 28 at a luncheon preceding a Small Business Clinic.

In outlining the services of the SBA, he emphasized those which the fishing industry could take advantage of: (1) financial assistance to small businesses through direct Government loans in which banks and SBA participate; (2) indirect financial assistance to small firms through privately owned, but SBA-licensed, investment companies; (3) loans to businesses which have been damaged or destroyed by natural disasters, or have suffered because of displacement by Federally-financed projects; (4) help to small business in obtaining a fair share of Government purchases; and (5) assistance to small businesses in overcoming management problems.

"In its lending program," Horne reminded his audience, "SBA does not compete with private lending institutions. Before we consider an application, a businessman must show he is unable to obtain financing from a private institution."

In helping small firms with management problems, SBA provides personal counseling, issues a variety of helpful publications, and acts as co-sponsors of management courses for businessmen.

The speaker also told of an SBA-sponsored research study now under way at the University of Miami of special interest to the shrimp industry. This study is aimed at improving the operation of the small fisheries for shrimp in the Atlantic and Gulf coast areas by exploring the technical and economic feasibility of utilizing scrap fish, as well as large quantities of other usable material, that is now being wasted.

The luncheon talk by the SBA Administrator was followed by a Small Business Clinic. Panel members and those present discussed the problems of the small fishery firm.

Month-Long National Promotion to Feature Seafood Plate Contest: Plans for an industry-wide fisheries

promotion throughout the entire month of October, featuring a hotel and restaurant Seafood Plate Contest with 13 valuable prizes, were announced on April 29 by the Fish and Seafood Promotions Division of NFL.

Five fishing industry leaders participated in a panel presentation at an open meeting during the convention, at which plans were outlined and reports of results of the promotional work during the past year were given.

"We have charted a course for the 1962 Fish 'n Seafood Parade, which gives it greater scope, greater appeal and a more direct tie-in with every segment of our industry," said the Chairman of the 1962 Fish 'n Seafood Parade in presenting the plans for an expanded fall promotion. "In the past, the Parade has been a one-week promotion. After careful consideration, our committee decided to extend the promotion throughout October. This expansion of the period will enable us to avoid the variable dates of the promotion from year to year; the uncertainty of fresh fish supply in any one week; the conflict with variable dates of religious holidays and the conflict with individual promotions of the big chains.

"...we have decided to sponsor a Seafood Plate Contest for owners, managers, and personnel of restaurants and mass-feeding operations. Participants will be asked to submit seafood plates of their own creation, bearing in mind appetite appeal, inventiveness, practicality, and flavor. Entries will be judged in three categories: (1) portions of fish; (2) fillets, steaks and other fish; (3) shellfish. Winners will be selected by a panel of editors of restaurant and other mass feeding magazines.

New Processing Methods and New Fishery Products: This was the subject on April 30 of the Second General Session of the Convention.

On the subject of fish protein concentrate, attention was called to the role that it could play in relieving the hunger that affects two-thirds of the world's population. It was pointed out that such a fish protein concentrate can contribute significantly to the problem of world food shortage and will boost our local fisheries industries by providing them with a new multimillion dollar outlet and creating new markets, both in this country and abroad.

A representative of the Atomic Energy Commission (AEC) discussed the goals desired and the problems to be solved by government, educational and industrial researchers in the radiation preservation of fish and shellfish. The objective of the program, he stated, is "to double or even triple the storage life of fresh seafoods by exposing them to low doses of radiation from radioisotope or machine sources, and then storing at refrigerated temperatures. This process might be termed 'radiopasteurization.' ... Since seafood is so desirable for its vitamins and high protein content as well as for its high degree of palatability, researchers must study the effect of radiation on the protein, fatty acid, and vitamin content of the radiopasteurized fish. Present results indicate that they will contain adequate amounts of these essential nutrients. Initial studies also give expectation that correct radiation levels will extend the refrigerated storage life of fishery products to several times that of unirradiated products without significantly affecting desirable odor, texture, or flavor."

Citing the results of a market study by the U. S. Department of Interior's Bureau of Commercial Fisheries, the AEC representative stated that "initial consumer resistance and the cost of an appropriate educational program were given as the main disadvantages." However, many of those interviewed during the study--processors, distributors, home economists, food editors, and other business and food specialists, "reported that they were impressed by the prospects of preservation of fishery products through radiation but preferred to withhold final judgment until the results of further research are known."

Outlining experimental work now in progress, and future program plans of the AEC, Dr. Aebersold expressed confidence that "the use of radiation to extend the shelf life of fish will be used commercially and with benefit to the housewife, producer, processor, and distributor."

Frontiers in Fisheries: The Under Secretary of the U. S. Department of the Interior, the principal speaker at the Second General Session on April 30, told the Convention that the manufacture of an economical fish flour or fish protein concentrate can be a valuable answer to the world's hunger problem and a boon to the United States fishing industry--once the processing flaws are worked out and mass production started. Carr said that this fish protein concentrate is highly nutritious and can be easily transported and stored. If it can be produced cheaply enough it can be both a blessing to humanity and can give a real boost to this country's domestic fishing industry.

Carr said that fish are the only readily available source of inexpensive animal protein in sufficient quantities to remedy widespread malnutrition and undernutrition in the world which is caused by protein deficiency in diets.

"Fish can supply these diet deficiencies in the form of concentrated protein," the secretary said. "Wisely utilized and managed, the sea with its vast fish populations represents an almost unlimited reservoir of high quality protein."

He emphasized also that mass production of a satisfactory fish protein concentrate in the form of fish flour "would provide a tremendous economic stimulation for the United States fishing industry." He said it would also provide a market for the great quantities of fish which are inadvertently caught with the more valuable varieties and now discarded at sea because there are no markets for them.

Carr pointed out that if fish processors were able to manufacture fish flour, periods of surplus in the fishing industry and fish markets would tend to stabilize "and starving individuals the world over would benefit."

The Under Secretary mentioned that the United States might very well be a market for this fish protein concentrate--as a supplement to breakfast cereals and baby foods. In addition, he said that cookies, doughnuts, noodles, and other foods could be transformed into improved quality protein foods when supplemented by fish flour.

"In the event of a nuclear emergency, United States fisheries alone could supply in one fishing season more than the protein required to sustain the entire United

States population during the crucial days immediately following such an emergency," Carr said.

In regard to the European Common Market and its effect on the United States fishing industry, Carr said he believed it is possible that changes in buying habits brought about by higher standards of living in the Common Market may have beneficial effects on total trade--including the fish trade.

"A greater use of edible fishery products may be among the favorable effects of a high consumer income," he said.

Resolutions Adopted: The Convention adopted the following resolutions:

1. CONFIDENTIALITY OF BUSINESS REPORTS TO GOVERNMENT: ". . . the proper Legislative Committees of the Congress be urged to immediately schedule public hearings and take whatever action is necessary to protect the confidentiality of business reports to Government."

2. NEED FOR FISHING VESSEL LEGISLATION: ". . . Whereas, the laws of the United States prohibit the purchase of vessels from abroad and require that fishing vessels be constructed in foreign yards, thus making it impossible for the United States industry to economically compete on the high seas, and . . . be it resolved that the seriousness of the United States high seas fishing vessel situation be brought to the attention of the President of the United States and the Congress of the United States, together with an appeal for immediate necessary Executive and Legislative action."

3. LEGISLATION TO AUTHORIZE A NATIONAL FISHERIES CENTER AND AQUARIUM: ". . . the National Fisheries Institute make an urgent appeal to the Honorable Jennings Randolph, Chairman of the Senate Subcommittee on Public Grounds and to the Honorable Dennis Chavez, Chairman of the Senate Committee on Public Works, to expedite action on said legislation; and be it further resolved that the National Fisheries Institute request the President of the United States to take such executive action as may be necessary to recommend immediate adoption of pending legislation to authorize a National Fisheries Center and Aquarium in the nation's Capital."

4. CONTENTS OF FISH BLOCKS, FISH STICKS, AND FISH PORTIONS: ". . . it is the sense of the National Fisheries Institute . . . that the terms fish blocks, fish sticks and fish portions are proper only when they are composed solely of substantially whole fillets and/or pieces of fillets but not of ground, flaked, minced, comminuted or finely chopped fish flesh."

"Items made from the latter have a definite place as food but not as material for sticks or portions which have been generally accepted by the consuming public and understood to be made from larger sized sections of fish fillets."

"It is suggested that clearly distinguishable names be used for products processed from this other material."

5. FROZEN FOODS WEEK: ". . . the National Fisheries Institute actively cooperate with the National Frozen Foods Association in the promotion of National

Frozen Foods Week during May of each year and that the staff of National Fisheries Institute utilize its communication media to advise its members of the dates and promotional activities and possible tie-ins with National Frozen Foods Week each year."

6. TITLE OF DIRECTOR EMERITUS: ". . . WHEREAS, Captain John G. Murley, of Fairhaven, Massachusetts, was one of the original members of the National Fisheries Institute and has served continuously on the Board of Directors from Region I since the beginning of the organization, thus making an outstanding contribution to the success of the organization; therefore, be it resolved that the title of Director Emeritus be conferred upon Captain John G. Murley."

7. PROPOSED REGISTRATION OF EXEMPT AND PRIVATE CARRIERS: ". . . the National Fisheries Institute . . . vigorously oppose legislative efforts to directly or indirectly narrow the effectiveness of the fishery exemption (for motor carriers), including the proposed registration requirements, but reaffirm its support for maximum enforcement of I.C.C. safety regulations affecting all highway users, such enforcement to be continued by the Federal, State and Local regulatory bodies presently responsible therefor."

8. EXTENSION OF MOTOR CARRIER EXEMPTION TO RAILROADS: ". . . the National Fisheries Institute . . . reaffirm its support for the preservation of Section 203 (b) (6) of the Interstate Commerce Act which makes possible the expeditious and flexible distribution of the fishery industry's highly perishable products without burdensome administrative regulation, and to further support the President's recommendations for the equalization of competition between rail and motor carriers serving the fishery industry."

New NFI Officers: Louis Vitale of Pasadena, Calif., was elected President of the National Fisheries Institute at the closing session of the Convention. He succeeds Harvey H. Bundy, Jr., Gloucester, Mass., who becomes Chairman of the Board. The new President assumes his new duties on September 1, 1962.

Other officers elected were: Louis Goldstein, Philadelphia, Pa., President-elect; Palmer Olson, Seattle, Wash., Secretary; Thomas C. Thomas, Wilkes-Barre, Pa., Treasurer; and Sidney H. Cohen, Boston, Mass., Treasurer-elect.

New General Manager for NFI: "No foods have a greater future than fish and shellfish. I am, therefore, looking forward with great enthusiasm to my work with the National Fisheries Institute," said F. P. Longeway, Jr., newly-appointed General Manager of NFI. Longeway succeeds Charles E. Jackson, who is retiring. Longeway further stated that he felt the increase of one-half pound per capita of fishery products during 1961 was indicative of the importance of the industry.

"The great variety of seafoods and many methods of their preparation add infinite interest to American menus," he said. "Fish and shellfish are generously endowed with food values of the highest quality, and their fats are of the polyunsaturated type, which counteract the harmful effects of saturated fats, number one suspect in heart disease and hardening of the arteries. Therefore, I welcome the opportunity of being of service to the industry which represents foods which mean so much to the health and well-being of our country."



New Jersey

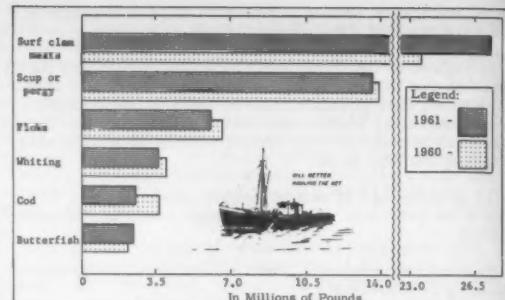
FISHERY LANDINGS, 1961:

Landings of fish and shellfish at New Jersey ports during 1961 totaled 397 million pounds with a value of nearly \$11 million. Compared with 1960, this was an increase of 6 percent in quantity and 13 percent in value. The catch for industrial use was up 22.6 million pounds, while that for food increased 1.2 million pounds.



In 1961 fish (principally menhaden) and shellfish used for industrial products amounted to nearly 331 million pounds, while the quantity used for food totaled over 66 million pounds. Surf clam meats and scup or porgy made up 61 percent of the edible items. Other important food species were fluke, whiting, cod, butterfish, hard clams, lobsters, oysters, and hake.

Compared with 1960, the 1961 catch of surf clams was up 14 percent--a record year for this species. Landings of striped bass were more than triple the quantity landed in the previous year. As a result of the opening of oyster seed beds which had been closed for 3 years, the oyster



New Jersey's catch of certain fish and shellfish, 1960 and 1961.

catch was up in 1961. The catch of cod and sea bass was lower than in 1960 by 33 percent and 32 percent, respectively.



North Atlantic Fisheries Exploration and Gear Research

MIDWATER TRAWL GEAR TESTED:

M/V "Rorqual" Cruise 62-1 (April 18-May 25, 1962): The Bureau's 65-foot research vessel Rorqual has undertaken explorations with midwater-trawl gear similar in design to that used by the Bureau's vessel Delaware.

Initial effort carried out in Massachusetts Bay waters was devoted to testing of equipment which included combination electrical-conductor/towing-warp, the use of which eliminates the need for a "third" wire to the depth-sounder transducer mounted on the headrope of the net.

After the gear had been satisfactorily tested the operation was devoted to scouting for fish schools and sampling.

Location of fish was accomplished by the use of sounding equipment continuously operated from the vessel. Upon reception of traces indicating concentrations of fish, sets were made to sample the fish. Herring were taken in each of the 5 midwater-trawl tows completed.

Scouting transects were made in depths from 15 to 55 fathoms along the southwest-



Catch of 4,000 pounds of sardine-size herring taken during a one-hour midwater-trawl tow in Cape Cod Bay.

ern Maine coast from the Isles of Shoals to Casco Bay. No significant signs of fish were seen and no fishing was done at that time.

Note: See Commercial Fisheries Review, May 1962 p. 23.

* * * * *

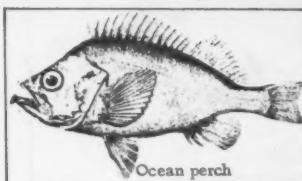
MIDWATER TRAWL TESTED IN FISHING FOR OCEAN PERCH:

M/V "Delaware" Cruise 62-5: To test the effectiveness of the midwater trawl in taking schooled ocean perch during the nighttime when the fish come off the bottom was the principal purpose of the May 7-18, 1962, cruise by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware. Particular care was taken to record the action and operation of the net under deep water conditions.

Scanning and scouting operations were conducted until fish concentrations were found. Fishing was conducted in the vicinity of Wildcat Knoll, 30 miles northeast of Provincetown, Cape Cod, and in Western and Eastern Holes, 15 to 20 miles southeast of Cape Sable, Nova Scotia. Toward the end of the cruise, operations were shifted to more shoal areas

on Georges Bank and off Nauset Beach for additional net performance tests.

In general, fish behavior was not conducive to successful midwater trawling. During the mornings, the fish gathered 2 to 5 fathoms above the bottom before settling. In the evenings, the fish rose 2 to 3 fathoms above the bottom and dispersed. The periods when off-the-bottom schooled fish were available were not longer than 25 minutes. Attempts to take fish during those times were not particularly successful as the slow towing speed necessary to keep the net so close to the bottom



allowed the fish to easily go under the net; this was clearly indicated by the headrope-mounted sounder transducer. Ocean perch were readily taken when the net was experimentally dropped to the bottom; this gear, however, is not designed to replace standard ocean perch bottom trawls and would not for long withstand conditions encountered in bottom trawling.

Modifications which will result in being able to tow the net more rapidly and at required depths are necessary before the midwater trawl can be successfully used for fishing ocean perch under conditions encountered.

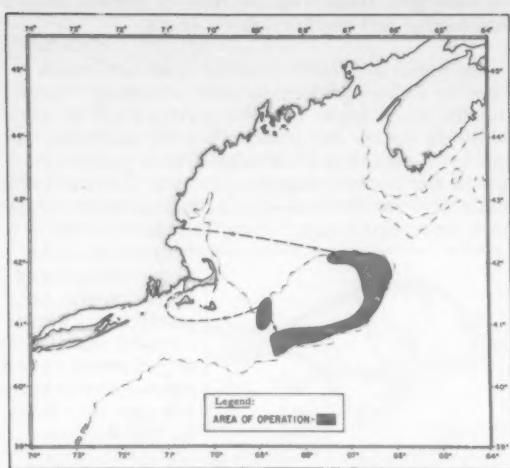
Several good tracings of herring schools occurred during the cruise but catches by the midwater trawl were small. The waters where good fish tracings occurred were generally abundant in Euphausid shrimp. Most catches included at least $\frac{1}{2}$ to 20 pounds of these small crustaceans and many of the tracings made by the echo-sounder were attributed to them.



North Atlantic Fisheries Investigations

DISTRIBUTION AND ABUNDANCE OF SEA SCALLOPS ON GEORGES BANK STUDIED:

M/V "Delaware" Cruise 62-6 (May 26-June 6, 1962): To collect data on the distribution and abundance of sea scallops on Georges Bank for comparison with similar data collected previously was the purpose of this



Sea scallop survey on Georges Bank by the research vessel Delaware, May 28-June 8, 1962.

cruise by the research vessel Delaware of the U. S. Bureau of Commercial Fisheries. Live scallops and clapper shells caught with a 10-foot standard dredge with a 2-inch ring bag were measured from 163 stations. A total of 184 10-minute tows were made. Also, 5 additional 5-minute tows were made at designated stations with a 30-inch Digby dredge with a $\frac{1}{2}$ -inch mesh liner. Special collection of meat samples and shell samples were brought back to the laboratory for detailed study. Live scallops were returned to the laboratory and placed in specially designed tanks for aging and spawning studies. Hydrographic information was collected at each station and at hourly intervals while steaming. This 10-day cruise ended on June 6. Note: See Commercial Fisheries Review, July 1961 p. 25.



North Pacific Exploratory Fishery Program

MARINE FAUNA OFF COLUMBIA RIVER TO BE SAMPLED:

In order to sample fauna and bottom substrate in the region southwest of the mouth of the Columbia River at depths of 50 to 1,000 fathoms, the Bureau of Commercial Fisheries, in cooperation with the Atomic Energy Commission, has chartered the University of Washington research vessel M/V Commando. The vessel left Seattle, May 14, 1962, and will return June 15, 1962.

The area of operation will be south of the Astoria Canyon and west-southwest of Tillamook Head, Oregon, in 50 to 1,000 fathoms of water.

Primary purposes of the cruise are: (1) to monitor stations established during previous cruises for distribution and abundance of demersal fishes and invertebrates; (2) collect samples of the fauna for analysis by the University of Washington, Laboratory of Radiation Biology; and (3) to conduct experimental trawling at depths greater than 600 fathoms.

Electronic navigational equipment will be used as aids in locating stations and trawlable bottom. A standard otter trawl will be used to depths of approximately 500 fathoms, and a Gulf shrimp trawl will be employed in deeper areas. A Van Veen bottom grab will be used to sample the substrate for invertebrates at various stations.



Oceanography

FIRST FOLIO OF NORTH ATLANTIC MARINE ENVIRONMENT SERIAL ATLAS:

The first folio of an unusual atlas project designed to aid the work of oceanographers and other scientists dealing with the sea was published in May by the American Geographical Society.

The project--a Serial Atlas of the North Atlantic Marine Environment--was begun two years ago by the Society in cooperation with other scientific institutions, following a two-year preparation period. The atlas is of a type never before attempted in this country--an effort to present a picture of the sea as a whole. It is to be published like a journal, in separate folios. Each folio will consist of a map or series of maps constituting a study of a particular aspect of the ocean, whether physical, biological, chemical, or geological.

In time, oceanographers should have a comprehensive range of studies in all disciplines. The atlas will thus provide simultaneously a medium for the publication of rapidly accumulating information about the sea and a guide for future research.

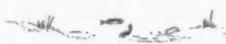
The first of the atlas folios, a study of sea surface temperatures in the western North

Atlantic, is the work of a meteorologist with the U. S. Bureau of Commercial Fisheries. It consists of 55 maps, 12 of which analyze a great volume of observations collected by commercial vessels at sea. The other 43 maps are interpretive. They show how the material can bring out detailed, month-to-month patterns of difference in the sea surface temperature. The study is expected to be a valuable contribution to environmental research.

Other folios in preparation include a study of the distribution of more than 130 species of fish off Georges Bank; a study of sea temperature at a depth of 656 feet; and a study of Spisula polynyma, a species of clam.

The atlas project is financially supported by a grant from the National Science Foundation, and by industrial companies and individuals. Cooperating institutions include the Royal Society of Canada, the Food and Agriculture Organization, U. S. Fish and Wildlife Service, the Woods Hole Oceanographic Institution, and the International Council for the Exploration of the Sea.

Note: See Commercial Fisheries Review, April 1962 p. 23.



Oregon

SILVER SALMON FRY RELEASED IN LUCKIAMUTE RIVER:

The release by the Oregon Fish Commission of 105,000 silver salmon fry this spring into the waters of the upper Luckiamute River near Valsetz was announced on May 9 by the State's Fisheries Director. The liberation followed the removal earlier in the year of an old splash dam that had long kept from production several miles of prime spawning gravel in the upper reaches of the stream.

The dam was constructed in 1903 to facilitate removal of logs from the woods with the now-outmoded "splashing" technique wherein logs were periodically flushed downstream from a collection point behind the structure. Building of the Valley and Siletz Railroad rendered the dam obsolete. It remained across the stream, however, and during the nearly 40 years since it was last used, a monumental mass of debris had built up behind the structure. The barrier measured some 300 feet in length and was as much as 20 feet deep in places.

After a concerted attack on the dam and the jam behind it, a Fish Commission crew succeeded in breeching the barrier, and the stream began flowing in its normal channel for the first time in 60 years.



Stages of development of silver salmon (Oncorhynchus kisutch) from eyed egg to feeding fingerling. Approximately twice normal size.

Many miles of once-productive spawning stream have been taken out of use by poor logging practices and other land-use activities conducted without due consideration for maintaining good stream conditions. The Luckiamute project is part of the Fish Commission's efforts to restore salmon and steelhead production to the fullest extent possible in Oregon's remaining anadromous fish spawning areas.

The young fish will stay in fresh water for approximately one year, then migrate to the ocean. The fall of 1963 will see some of the early returning jacks back up the river, but most of the fish surviving the rigors of ocean life and the two-way river migration will come back as spawners in the fall of 1964.

Pollution

RESISTANCE OF FISH TO REFINERY WASTES TO BE STUDIED:

A study on the life history, behavior, and methods of handling fish to measure their resistance to refinery wastes will be conducted by a professor of zoology, Oklahoma State University, Stillwater. This was one of a total of 40 research grants (totaling \$647,000) made to 40 college and university scientists by the U. S. Public Health Service's Division of Water Supply and Pollution Control in a continuing effort to find better technological ways to purify the Nation's water sources and supply.

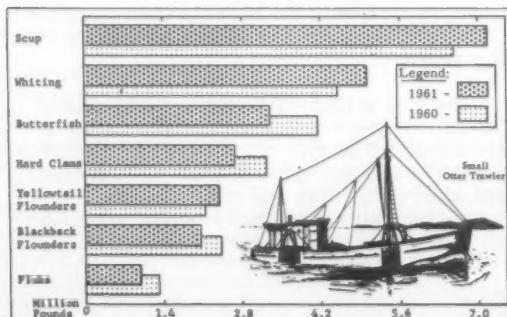
Another grant to an assistant professor of oceanography, Cornell University, Ithaca, is for a study of the processes involved in the distribution of oxygen in coastal waters. Continued growth and urbanization of coastal regions has resulted in a mounting utilization of tidal waters for dispersal and oxidation of organic pollutants. Serious oxygen depletion with a marked accumulation of decaying organic matter in the water occurs in many heavily polluted estuaries, damaging fisheries and recreational uses, as well as proving a public health hazard.



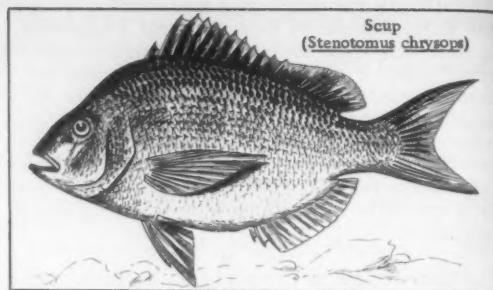
Rhode Island

FISHERY LANDINGS, 1961:

Landings of fish and shellfish at Rhode Island ports during 1961 amounted to 83.4 million pounds valued at \$3.2 million ex-vessel. Compared with 1960, this was a gain of 14.1 million pounds, but a drop of \$651,000. The catch used for food was down 10 percent, while that used for industrial



Rhode Island's landings of certain fish and shellfish, 1961-1960.



purposes, principally fish meal, was up 43 percent.

During 1961, scup led all edible items with 7.1 million pounds. Whiting was next with 5 million pounds, and butterfish third with 2.9 million pounds. Hard clams, yellowtail and blackback flounders, and fluke followed. Those seven items comprised 86 percent of the 1961 total edible production.

The majority of the 1961 production was taken by otter trawlers--51 million pounds or 61 percent of the year's total landings. Purse seines accounted for 22.7 million pounds or 27 percent, while the remaining 9.7 million pounds or 12 percent were taken by other types of gear.

Landings were highest during August with 16.5 million pounds. Fish for industrial use made up 88 percent of the August landings. June was second with 12.9 million pounds, followed by July with 12 million pounds.



Sharks

TAGGING PROGRAM ON TROPICAL PACIFIC SPECIES:

As part of its program of research on sharks, the U. S. Bureau of Commercial Fisheries Biological Laboratory, San Diego, this year started a tagging program on tropical Pacific species of sharks.

Fishermen should be on the lookout for the strap tags attached to the dorsal fin of sharks. A reward of one dollar will be paid for the return of tags to the Laboratory with information on date and location of capture.



Shrimp

UNITED STATES SHRIMP SUPPLY INDICATORS, MAY 1962:

Item and Period	1962	1961	1960	1959	1958
..... (1,000 Lbs., Heads-Off)					
Total landings, So. Atl. and Gulf States:					
July	-	10,477	21,746	17,493	13,457
June	-	8,220	12,427	14,547	10,241
May	5,500	5,279	6,335	6,885	6,523
Jan.-Apr.	14,200	17,453	18,013	14,080	19,333
Jan.-Dec.	-	91,280	141,035	130,660	116,552
Quantity canned, Gulf States 1/:					
July	-	3,042	6,319	3,085	4,805
June	-	3,744	7,537	7,641	5,107
May	1,600	1,316	1,591	2,680	1,462
Jan.-Apr.	944	345	712	617	540
Jan.-Dec.	-	15,760	28,594	24,679	26,404
Frozen inventories (as of end of each mo.) 2/:					
July 31	-	2,671	7,077	7,062	3,832
June 30	-	19,418	15,338	19,283	10,664
May 31	-	24,696	17,540	21,137	11,013
April 30	16,147	27,492	20,502	23,331	12,211
January 31	-	31,842	34,332	30,858	17,963
Imports 3/:					
July	-	6,835	7,319	7,861	6,340
June	-	8,065	8,932	8,300	6,018
May	4/	8,278	9,902	8,284	5,666
April	10,219	9,208	7,733	9,051	5,446
Jan.-Apr.	43,383	40,825	32,531	33,262	20,594
Jan.-Dec.	-	126,268	113,418	106,555	85,393
1/Pounds of headless shrimp determined by multiplying the number of standard cases by 33.					
2/Raw headless only; excludes breaded, peeled, and deveined, etc.					
3/Includes fresh, frozen, canned, dried, and other shrimp products as reported by the Bureau of the Census.					
4/Not available.					
Note: Data for 1962 and 1961 are preliminary. May 1962 data estimated from information published daily by the New Orleans Fishery Market News Service. To convert shrimp to heads-on weight multiply by 1.68.					



Sport Fishing

SKIN DIVERS TAKE MARINE FISH CENSUS:

Salt-water fish along all coasts of the United States were tallied in an underwater census, the Department of the Interior announced. The census, known as the Memorial Day Fish Count, began May 26, 1962, and lasted through June 3. It consisted of identifying, counting, and recording salt-water fish by 70 census teams in 16 coastal states. The teams varied from 3 to 15 persons and included men, women, and teenagers.

The census takers were 400 skin-diver volunteers of the American Littoral Society, an organization of amateur underwater naturalists, with headquarters at Sandy Hook, N. J. The program is coordinated by the Sandy Hook Marine Laboratory of the U.S. Fish and Wildlife Service's Bureau of Sport Fisheries and Wildlife.



Sandy Hook Marine Laboratory and a local American Littoral Society team cooperated in a New Jersey coast survey.

Divers listed as many of the United States marine fish as they could find during the nine-day period. In a pilot study held last summer, 24 test teams counted 23,000 fish of 93 species. These ranged from one-inch long angelfish to twelve-foot tiger sharks.

The American Littoral Society seeks to encourage underwater study of shore life by direct observation of fish and other marine animals, assist members in solving problems of a scientific nature, foster public information about shore life and public awareness of needs for conservation action, and act as "eyes" for marine scientists.

For years, marine biologists have been troubled over their inability to make simultaneous observations of the distribution and abundance of fish over their entire range, which, in some cases, may be thousands of miles along the coast. The planned fish counts will help fill this gap and answer such questions as where migratory fish come from, where they go, and where their centers of abundance are. Further study of the data collected during the census is expected to give some clues on why fish distribution and abundance are patterned the way they are.

The Director of the U.S. Bureau of Sport Fisheries and Wildlife hailed the skin divers' efforts as "a fine example of the growing interest of our people in conservation activities."

The present fish count will be followed by two others later in the year--one on the Fourth of July and another on Labor Day.



Storm Damage

ATLANTIC COAST AREA DAMAGED BY HIGH TIDES:

High tides and strong winds hit a large portion of the Atlantic Coast March 6-8, 1962, and caused much damage to property and some damage to shellfish resources in coastal bays. Some Bureau facilities were damaged. Several fishing vessels were lost at sea, and con-

tour shifts along the coast caused many navigation problems. The coastal areas of North Carolina, Virginia, Maryland, Delaware, New Jersey, and New York all suffered some damage from the storm. The damage to fishing vessels, equipment, docking facilities, and shore plants was not as heavy as had been reported immediately after the storm. But the full effect of the storm on shellfish resources, like oysters and clams, will not be known for some time.

The U. S. Interior Department's special task force on Atlantic Coast storm damage made an aerial survey on March 28 of the hard-hit beaches of New York, New Jersey, Delaware, and Maryland. The task force continued its aerial reconnaissance the next day over the Virginia and North Carolina coasts. The Coast Guard furnished the aircraft and flight crew.

Governors of all six States cooperated in the study. The Department launched the study at the request of Chairman Clinton P. Anderson of the Senate Committee on Interior and Insular Affairs Committee. The New Mexico Senator said the Federal study was needed to help States plan for future protection of their coastal areas, and to save some of their beach areas under public ownership.

Losses due to the storm to Interior Department installations were estimated at more than \$3.5 million. Virtual loss of two National Wildlife Refuges in Virginia and North Carolina and serious damage to nine other refuges resulted. Loss was assessed at approximately \$2 million. Some damage also was suffered by the Department's fishery laboratory at Franklin City, Va. Restoration of all areas is under way.

Fish and Wildlife Service officials said that the sport and commercial varieties of finfish did not suffer serious loss from the storm. Concern was felt regarding shellfish resources because of extensive silting, but no extensive damage was reported by the shellfish industry as of early April 1962.

The Coast and Geodetic Survey, U. S. Department of Commerce, in mid-March mobilized a special land-sea-air task force to begin a resurvey of the storm-ravaged Atlantic coastline from Long Island to South Carolina. Work to re-map the coastline with new aerial photography was begun on March 13. Preliminary examination of this photo-

graphy confirmed the belief that existing charts are now obsolete in areas of radical shoreline change.

The Coast and Geodetic Survey has given high priority to updating its charts, particularly in those areas of ship channels and marine commerce. A series of little "chartlets" have been issued. These are intended to supplement existing nautical charts until new chart editions can be issued later this year. But basic hydrographic surveys will also be ordered for most of the affected states to learn what has happened to channel depths and the ocean floor.

Reports indicate that the photography revealed some very prominent alterations in the shoreline complex. The Hatteras photos, for example, show new inlets connecting the Atlantic Ocean and Pamlico Sound. Much of the land around Ocracoke Island is gone, and definite changes have been noted in the barrier islands along the Virginia-Maryland shoreline.

The most significant changes were delineated in the 18 "chartlets" to supplement regular Coast and Geodetic Survey nautical charts. Eight of these areas were given top priority. They are: Ocean City, Md.; Absecon Inlet, N. J.; Beaufort Inlet, N. C.; Cape Fear, N. C.; Lookout Bight, N. C.; Little Egg Harbor Entrance, N. J.; Chincoteague, Va.; and Ocracoke, N. C.

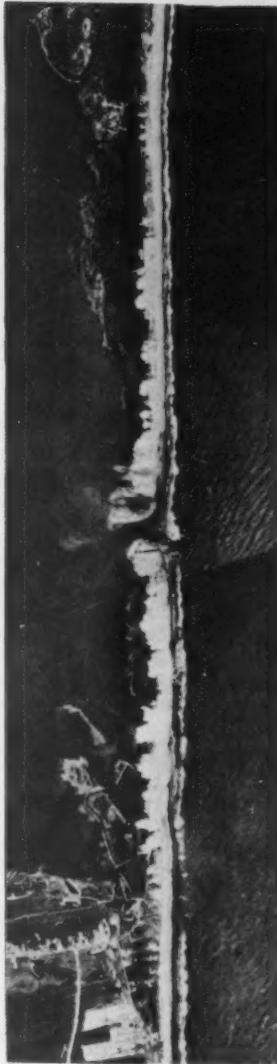
Oceanographers of the Survey believe that when the ocean completely "settles down" and the sand begins to adjust to a new level, that further changes will be apparent in the shoreline. This process, they say, may take a year or so, and a survey of selected coastal areas will be required again at that time.

In Maryland there was some damage to the fisheries and beach resorts. Ocean City in Maryland was extremely hard hit. The majority of the Maryland fishing fleet came through without too much damage, except for one vessel which was washed ashore on Assateague Island (the captain and one crew member were drowned). Two other vessels engaged in the cod long-line fishery were sunk at the dock, but were quickly raised for repairs.

Fishing communities along the Maryland portion of Chincoteague Bay were hampered by high waters. A packing plant at George Island Landing was about demolished with

CAPE HATTERAS, NORTH CAROLINA

Date of Photography - October 10, 1958



Date of Photography - March 13, 1962

\$25,000 damage. Other plants along the Bay were flooded and equipment was water damaged.

In Chincoteague, Va., all 11 of the oyster packing houses were water-logged and damaged. A large number of the boats used in dredging oysters were gone. The loss in production before things returned to normal and costs of repairs were estimated at a conservative \$500,000. Other oyster sections hard hit were Greenbackville, Va., and George Island Landing and Taylor's Landing in Maryland. In the latter port 7 or 8 packing houses were closed after the storm for some time. The storm hit almost at the peak of the oyster season in the Virginia and Maryland areas. Shucking and shipments were stopped for several weeks by health authorities because of the danger of pollution. Some of the public oyster grounds in the area were covered by sand; the same was true for private oyster grounds in the Northampton and Accomack counties area.

In the Hampton Roads area of Virginia, the biggest loss was in pond nets and equipment. Some nets and the supporting poles were swept away entirely. All others were damaged to some degree. The largest pond nets were located off Buckroe Beach and Grandview. Some of the pond nets were repaired, but others were discarded as not worth repairing. Crab-picking plants in the area were idle for more than a week after the storm because of the lack of crabs. Most dockside facilities were under water for several days and some damage was reported to those facilities.



Turtles

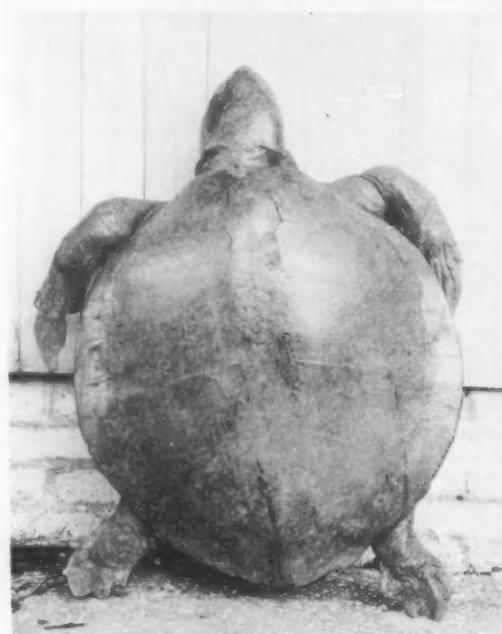
UNITED STATES NAVY PLANTS GREEN TURTLES IN CARIBBEAN:

Between 20,000-30,000 green sea turtle hatchlings were deposited throughout the Caribbean Ocean area in September 1961 by a United States Navy seaplane.

The objective is to replenish the rapidly-diminishing population of green turtles (Chelonia mydas), which has been the main source of meat for natives of the area for centuries. At the same time, the Navy will study the migration habits of the green turtle, which is considered to have superior navigational abilities the same as the salmon.

The planting operation was a cooperative venture of the Navy and the Caribbean Conservation Commission (CCC), a non-profit institution, and was under the direction of a professor of the University of Florida, Gainesville, who is also the director of the contract research project from the Office of Naval Research (ONR).

The freshly-hatched turtles were transported in plastic bags by a Navy Grumman seaplane from the green turtle hatchery operated by the CCC at Tortuguero, Costa Rica, about 50 miles north of Limon, one of the few areas in the Caribbean where green turtles are still plentiful. The baby turtles were flown to British Honduras; Cartagena, Colombia; Barbados, Grenada, and St. Lucia in the Windward Islands; Antigua and St. Kitts in the Leeward Islands.



Full grown green sea turtle.

The operation is based on the theory that green turtles return to their spawning grounds three years later to lay their eggs, similar to the return of the salmon to spawn. It is hoped that by transplanting the baby green turtles just after they have been hatched, the turtles will accept their new location as their spawning ground and return there to lay their eggs rather than to

Tortuguero where they were hatched. If the turtles return to the various places in the Caribbean where they were planted, then natives of those areas will be provided eventually with an abundant supply of meat for the first time in many years, solving a critical problem of protein deficiency.

Scientific research will be served by obtaining knowledge of whether turtles use certain clues to navigate for distances up to thousands of miles out to sea and back to the place from where they first enter the sea or whether they use other clues to return to the place where they were hatched. ONR has also under consideration a research study to determine how baby green turtles, which are spawned far inland and usually behind dunes, unerringly find their way to the sea which they have never seen. This would throw more light on their navigation mechanisms.

The Navy also plans to develop a system of marking baby green turtles, which are about the size of a half-dollar, so that as they grow to their huge adult size they can be located and identified periodically throughout their migration period.

ONR's study of green turtles is part of a broad, long-range program in biological orientation through which the Navy hopes to improve its navigation and long-range detection devices by learning how birds and marine animals can navigate with remarkable accuracy over long distances to reach destinations over routes they have never traveled before.



U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, MARCH 1962:

Imports of fresh, frozen, and processed edible fish and shellfish into the United States in March 1962 were up 22.4 percent in quantity and 15.6 percent in value as compared with the previous month. During that period there were greater imports of cod fillets, haddock fillets, swordfish, canned salmon, frozen and canned tuna, canned sardines, canned spiny lobster, and frozen sea scallops. But imports were down for frozen shrimp, frozen frog legs, ocean perch fillets, fillet blocks and slabs, and sea catfish fillets.

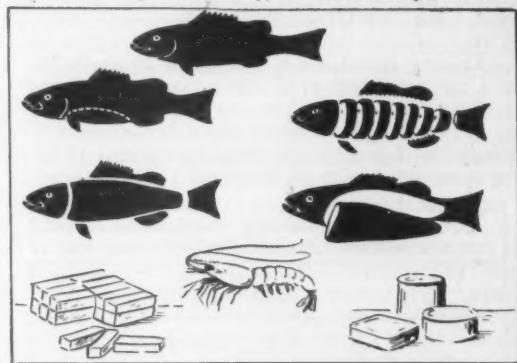
Compared with the same month in 1961, the imports in March 1962 were up 22.8 percent in quantity and 20.2 percent in value. This March there were more imports of frozen cod and flounder fillets, sea catfish fillets from West Germany, canned salmon (from Canada and Japan), frozen tuna (from Japan, Ecuador, Peru), canned tuna (from Japan), canned sardines, and frozen scallops from Canada. Imports dropped off for frozen haddock fillets, blocks and slabs, canned crab meat

Item	U. S. Imports and Exports of Edible Fishery Products, March 1962 with Comparisons							
	QUANTITY				VALUE			
	Mar.	Jan.-Mar.	Mar.	Jan.-Mar.	1962	1961	1962	1961
Imports:	. . . (Millions of Lbs.) . . . (Millions of \$) . . .							
Fish & Shellfish: Fresh, frozen, & processed 1/ . .	102.9	83.8	275.9	251.7	33.3	27.7	94.3	80.9
Exports:								
Fish & Shellfish: processed only 1/ (excluding fresh & frozen)	3.7	1.7	10.1	8.6	1.3	1.0	4.0	4.0

¹/Includes pastes, sauces, clam chowder and juice, and other specialties.

(from Japan), spiny lobster tails (from South Africa), shrimp (from Mexico), and frozen frog legs (from Cuba).

In the first three months of 1962, imports were up 9.6 percent in quantity and 16.6 percent in value as compared to the same period in 1961. The greater increase in value was because of the higher prices which prevailed the first part of this year for nearly all imported fishery products. This year there were more imports of blocks and slabs, sea catfish fillets, canned salmon (from Japan and Canada), frozen tuna (mostly from Japan and Peru), canned tuna (from Japan), canned sardines, frozen shrimp, and frozen scallops.



United States exports of processed fish and shellfish in March 1962 were up 117.6 percent in quantity and 30.0 percent in value as compared with March 1961. The increase was due to greater exports this March of canned mackerel, salmon, sardines not in oil, and squid (principally to Greece). Because of the scarcity on the United States market, exports were down for frozen shrimp, canned shrimp, and canned oysters.

Compared with the previous month, the exports in March 1962 were up 27.6 percent in quantity, but the value was the same. The lower-priced products like canned mackerel and squid were exported in greater amounts in March, with some increase in the exports of frozen and canned salmon and canned sardines. Exports of canned shrimp, frozen shrimp, and canned oysters dropped in March.

Processed fish and shellfish exports for the first three months of 1962 were up 17.4 percent in quantity, but the value was the same as in the same period of 1961. The following products were exported in substantially greater quantities in 1962: canned mackerel, frozen salmon, and canned squid; but exports dropped for canned sardines not in oil, canned shrimp, and canned oysters. Since most of the increase in exports January-March this year was in the lower-priced products, there was no change in value.

* * * * *

IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA:

United States imports of tuna canned in brine during January 1-June 2, 1962, amounted to 22,325,162 pounds (about 1,063,100 std. cases), according to data compiled by the Bureau of Customs. This was 11.4 percent more than the 20,035,659 pounds (about 954,100 std. cases) imported during January 1-June 3, 1961.

The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1962 at the 12½-percent rate of duty is limited to 59,059,014 pounds (about 2,812,000 std. cases of 48 7-oz. cans). Any imports in excess of the quota are dutiable at 25 percent ad valorem.



U. S. Fishing Vessels

DOCUMENTATIONS ISSUED AND CANCELLED, APRIL 1962:

During April 1962, a total of 39 vessels of 5 net tons and over were issued first documents as fishing craft, as compared with 35 in April 1961. There were 22 documents cancelled for fishing vessels in April 1962 as compared with 25 in April 1961.

Table 1-U.S. Fishing Vessels 1/—Documentation Issued and Cancelled, by Areas, April 1962 with Comparisons

Area (Home Port)	April		Jan.-Apr.		Total
	1962	1961	1962	1961	
.....(Number).....					
Issued first documents 2/					
New England	6	2	9	11	33
Middle Atlantic	-	-	1	1	12
Chesapeake	5	9	12	21	75
South Atlantic	3	1	10	12	44
Gulf	3	7	28	34	103
Pacific	22	15	37	38	149
Great Lakes	-	1	-	4	12
Puerto Rico	-	-	-	2	2
Total	39	35	97	123	430
Removed from documentation 3/					
New England	2	-	8	5	20
Middle Atlantic	4	2	19	12	32
Chesapeake	2	2	5	16	28
South Atlantic	1	-	15	8	29
Gulf	5	10	34	40	104
Pacific	8	8	50	34	111
Great Lakes	-	3	8	7	17
Hawaii	-	-	3	-	-
Total	22	25	142	122	341

1/ For explanation of footnotes, see table 2.

Table 2-U.S. Fishing Vessels—Documents Issued and Cancelled, by Tonnage Groups, April 1962

Gross Tonnage	Issued 2/	Cancelled 3/
	.....(Number).....	
5-9	6	6
10-19	22	8
20-29	4	-
30-39	1	1
40-49	-	1
50-69	1	3
70-79	2	-
80-89	-	1
100-109	1	-
110-119	1	1
210-219	1	-
450-459	-	1
Total	39	22

1/ Includes both commercial and sport fishing craft. A vessel is defined as a craft of 5 net tons and over.

2/ Includes redocumented vessels previously removed from records. Vessels issued first documents as fishing craft were built: 29 in 1962, 3 in 1961, 5 prior to 1951, and 2 unknown. Assigned to areas on the basis of their home ports.

3/ Includes vessels reported lost, abandoned, forfeited, sold alien, etc.

Source: *Monthly Supplement to Merchant Vessels of the United States*, Bureau of Customs, U.S. Treasury Department.



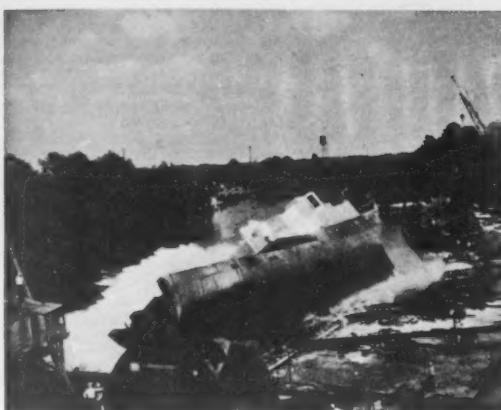
Vessels

NEW RESEARCH VESSEL LAUNCHED FOR FISH AND WILDLIFE SERVICE:

Albatross IV, the new oceanographic vessel of the Fish and Wildlife Service's Bureau of Commercial Fisheries, has been launched by the Southern Shipbuilding Corporation at Slidell, La., the Department of the Interior reported on May 23, 1962. Finishing of the interior and installation of additional machinery and equipment are under way and delivery of the \$1,773,948 vessel is scheduled for September 1962.

Albatross IV was designed by Dwight S. Simpson and Associates, naval architects and marine engineers of Boston, Mass., to meet requirements of fishery scientists of the Bureau. The craft is a 187-foot single-screw stern trawler, the first stern trawler to be built in the United States. It is equipped with a ramp to haul loaded nets aboard, permitting exploratory and experimental fishing during heavy weather. The *Albatross IV* is powered by twin Diesel engines, has a controllable pitch propeller, and is designed to travel at 12 knots with a range of 9,000 miles. The vessel is reinforced against ice and is air-conditioned to enable its use for general fishery and oceanographic research in any navigable waters in the world—in all seasons—in all reasonable conditions of weather and temperature.

Comfortable quarters and mess space are provided for a maximum crew of 26, plus 15 scientific personnel. Complete laboratory and research facilities are also provided, including wet and dry laboratories; photographic and electronics laboratories; an aft open deck laboratory for handling fish immediately after catch; a bow engine for steering and maneuvering on station; a steerable nozzle rudder;



Albatross IV launching on April 19 at Slidell, La.

designed for holding position during research work; underwater sonar equipment; underwater television and closed-circuit television aboard ship; and an underwater electromagnetic log.

Albatross IV carries on the traditional name of major fishery research vessels of the United States. Albatross I was a 234-foot, twin-screw iron steamer, commissioned in 1882, which visited both coasts of the United States, Alaska, South and Central America, the Galapagos Islands, the Hawaiian Islands, Japan, the tropical Pacific Islands, and the Philippine Islands during her 39 years of service that ended in 1921. Her successor, Albatross II, was a 148-foot, former Navy tug that operated from 1926 to 1932, engaging in research and explorations on mackerel and haddock fisheries and preliminary experiments with "savings" gear.

Albatross III was acquired from the General Seafoods Corporation in 1939 for \$1. She was originally the Harvard, a steam-driven trawler built in 1926. While awaiting reconversion to a research vessel, World War II started and she was drafted by the Navy, transferred to the Coast Guard, renamed the C.G.C. Bellefonte, and was rebuilt as an Atlantic patrol vessel. She was returned to the Fish and Wildlife Service in 1944, was reconverted in 1947 to a research vessel along the lines of the Boston otter trawlers, and was commissioned March 19, 1948.

Albatross III represented the first blending of efficient fish and scientific skills, and her career included such accomplishments as an over-all census of commercial fisheries on the New England banks, experiments on refrigeration of fish at sea, development of "savings" gear, effects of waste-acid disposal off New York, and the location and charting of wrecks and other obstacles destructive to the nets and gear of New England commercial fishermen. She was deactivated in 1959 due to age and high cost of maintenance.

Albatross IV will be carrying on the fishery and oceanographic research vital to the Nation's commercial fisheries and oceanographic programs—to help the domestic fishing industry in the quest for the three billion additional pounds of fish the Nation will be consuming annually 20 years hence; and to conduct various phases of oceanographic research, such as the Bureau's Tropical Atlantic Fishery Investigations program beginning in January 1963. This program has just been adopted as an international program by the Intergovernmental Oceanographic Commission of UNESCO in Paris, France.

New dock facilities at the Bureau of Commercial Fisheries Woods Hole, Mass. Biological Laboratory will be the home port of Albatross IV.



Virginia

STUDY OF EFFECTS OF INDUSTRIAL HOT WATER DISCHARGES ON MARINE ENVIRONMENT:

The effects of thermal (heated) effluents discharged into the marine system by industries using river water for cooling and processing will be determined by a comprehensive scientific investigation now being initiated at the Virginia Institute of Marine Science. Formulation of the project, which is to be supported by a recently-approved \$11,711 research grant from the U. S. Public Health Service, was announced by the Institute on May 16.

The study would measure the response of selected marine plants and animals to elevated temperatures caused by the release of heated water into streams. Heated water might produce a thermal barrier which would interfere with the normal upstream and downstream migrations of important fish species, particularly during spawning seasons, and possibly have a direct effect upon succeeding populations of those species. Elevated temperatures may also effect the food chain present in marine waters.

The study is deemed important in the light of rapid industrialization and community growth in coastal areas. While these trends are vital to the progress of the Commonwealth of Virginia, their effects upon the marine system must be measured. Results of this investigation will thereby aid in the realization of continued maximum utilization of valuable marine resources.



Washington

ANOTHER SALMON FISH FARM GOES INTO PRODUCTION:

The Washington State Department of Fisheries on May 15 announced that Whitman's Cove in Case Inlet, Pierce County, was planted on May 1 with 250,000 young chinook salmon. This is the 28th salmon fish farm in the Department of Fisheries' continuing effort to produce more salmon for all fishermen. The chinook, about 365 to the pound, weighed around 719 pounds. They had been converted to salt water at the Department's Hoodspur Hatchery.

The installation includes an electric screen, a control structure for bringing in sea water for circulation, two 52-inch pipes for inlet and outlet, and a boat-hauling ramp. Total cost was just under \$200,000, making it the most expensive of any of the fish farms established so far in the State.



Wholesale Prices, May 1962

More liberal landings of haddock at Boston accounted for the 28.3 percent drop in fresh large drawn haddock prices from April to May. But those prices were still 9.1 percent higher than in the same month a year earlier. Seasonally heavier landings of fresh-water fish in the Great Lakes area caused whitefish and yellow pike prices in May to drop 16.5 percent below April prices. But with landings light and demand good, fresh salmon prices in May were up 15.9 percent from April and were also 13.7 percent higher than a year earlier. With the arrival on the market of halibut from this sea-



Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, May 1962 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ (\$)		Indexes 2/ (1957-59=100)			
			May 1962	Apr. 1962	May 1962	Apr. 1962	Mar. 1962	May 3/1961
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					119.4	118.9	120.3	103.6
Fresh & Frozen Fishery Products:					118.1	117.2	119.4	101.0
Drawn, Dressed, or Whole Finfish:					119.9	119.1	121.8	106.6
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.08	.12	65.7	91.6	124.0	60.2
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.41	.45	122.2	133.1	116.8	103.0
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	1.00	.98	139.7	120.5	120.5	122.9
Whitefish, L., Superior, drawn, fresh	Chicago	lb.	.71	.85	106.0	126.9	111.9	98.5
Yellow pike, L., Michigan & Huron, rnd., fresh	New York	lb.	.71	.85	116.3	139.2	120.4	117.1
Processed, Fresh (Fish & Shellfish):					119.7	120.4	123.2	101.7
Fillers, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.33	.38	80.1	91.1	121.4	70.4
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	1.02	.99	119.6	116.0	117.2	89.7
Oysters, shucked, standards	Norfolk	gal.	7.50	7.75	126.5	130.7	130.7	122.2
Processed, Frozen (Fish & Shellfish):					110.2	108.0	109.0	88.1
Fillers: Flounder, skinless, 1-lb. pk.	Boston	lb.	.40	.40	100.1	100.1	100.1	97.6
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.33	.33	96.7	96.7	101.1	93.8
Ocean perch, lge., skins on 1-lb. pk.	Boston	lb.	.32	.33	110.4	115.7	119.2	101.6
Shrimp, lge. (26-30 count), brown, 5-lb. pkg.	Chicago	lb.	.99	.95	116.8	112.7	112.1	81.2
Canned Fishery Products:					122.1	122.1	122.1	110.5
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	28.50	28.50	124.2	124.2	124.2	122.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	12.15	12.15	107.9	107.9	107.9	97.7
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 24 cans/cs.	Los Angeles	cs.	5.25	5.25	118.5	118.5	118.5	101.5
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	12.81	12.81	164.3	164.3	164.3	112.2

1/ Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.

2/ Beginning with January 1962 indexes, the reference base of 1947-49=100 was superseded by the new reference base of 1957-59=100.

3/ Recomputed to be comparable to 1957-59=100 base indexes.

son's catch, prices for the fresh and frozen product were down 8.2 percent from April to May, but were still 18.6 percent higher than in May 1961. With the higher fresh salmon prices offsetting the lower prices in the other products under the drawn, dressed, or whole finfish subgroup, the index for the subgroup rose 0.7 percent from April to May and was 12.5 percent higher than in May 1961.

Except for fresh shrimp at New York City, May prices of fresh haddock fillets at Boston were down 12.1 percent and shucked oyster prices at Norfolk were down 3.2 percent from April. With landings light and demand good, May shrimp prices at New York City were up 3.1 percent from April and they were up 33.3 percent from the same month in 1961. The processed fresh fish and shellfish subgroup index, principally because of higher shrimp prices, rose 0.6 percent from April to May and was 17.7 percent higher than a year earlier.

From April to May prices for frozen fillets of flounder and haddock remained steady, but ocean perch fillet prices dropped 4.6 percent because of heavier landings of ocean perch in New England ports. With stocks still at a low level, frozen shrimp prices at Chicago in May were 3.6 percent higher than in April and 43.8 percent higher than in May 1961.

All frozen fillets this May were priced higher than in the same month of 1961. Because the higher shrimp prices more than offset the lower ocean perch fillet prices, the processed frozen fish and shellfish index rose 2.0 percent from April to May and was 25.1 percent higher than in the same month of 1961. Frozen fishery products continued to move well in May. Markets were reported steady for most of the major products.

Canned fishery products prices remained at the same level from February through May. But the index for the subgroup this May was 10.5 percent higher than a year earlier. Compared to May 1961, prices this May were up 1.8 percent for canned pink salmon, up 10.4 percent for canned tuna, up 16.7 percent for California sardines, and up 46.4 percent for Maine sardines. The canned tuna pack this year was only slightly ahead of last year at the end of May, but less light meat and more white meat was packed the first five months of this year. A substantial drop in domestic landings of yellowfin tuna in California curtailed the pack of light meat tuna. Through May the pack of Maine sardines was still light and the available stocks had practically been sold out by the end of April. The 1961/62 season pack for California sardines was again a small one.



VACUUM FREEZE-DRYING TESTED FOR APPLICATION IN FOOD FIELD

One of the "hottest" developments in food processing today is vacuum freeze-drying, which is beginning to move from the laboratory and pilot-plant stage into tonnage production.

The process, known for many years in the United States, but until recent times limited largely to blood plasma and drugs, is catching on in a big way. Major food firms, which have been quietly testing the merits of the process, are expressing optimism for the future of vacuum freeze-dried foods.

The list of foods which have successfully been subjected to the new process is impressive. Some of the foods include: in meats: beef steaks, pork chops, ground beef, diced beef, sausage meat, chicken parts and diced chicken; in seafoods: shrimp, crab meat, crab cakes, clams, oysters, fish fillets, fish sticks, whole lobster, and lobster tails; in dairy products: whole milk, homogenized milk, goat's milk, mother's milk, whole eggs, egg albumen, and cottage cheese, and numerous fruit and vegetable products.

The vacuum freeze-drying process, also called lyophilization and sublimation, removes the moisture from foods under high vacuum conditions with only a small amount of heat. The resulting product can reportedly be stored indefinitely without refrigeration.

There is a slightly higher processing cost for freeze-drying, but proponents of the new process say that the savings in refrigeration equipment and in the low transportation cost compensate for this.

Food subjected to this process does not change shape, but takes on the consistency of a dry, brittle sponge. Sealed in a tin can, foil, or plastic pouch to keep out the moisture, such foods will keep for years at ordinary temperatures. The food is reconstituted by placing it in water for approximately 20 minutes. The sponge-like food absorbs water into the original spaces left by the evaporated ice, thus bringing the food back to nearly its original flavor and texture. (Food Field Reporter, April 24, 1961.)



International

NORTHWEST ATLANTIC FISHERIES COMMISSION

STANDING COMMITTEE ON RESEARCH AND STATISTICS MEETS:

The Standing Committee on Research and Statistics of the International Northwest Atlantic Fisheries Commission met in Moscow May 24-June 9, 1962. This meeting preceded the 12th Meeting of the Commission (June 4-9).



INTERNATIONAL NORTHWEST PACIFIC FISHERIES COMMISSION

JAPAN-SOVIET FISHERY NEGOTIATIONS DEADLOCKED ON SALMON REGULATORY AREA ISSUE:

Talks at the sixth annual meeting of the Japan-Soviet Northwest Pacific Fisheries Commission, in session in Moscow as of mid-April 1962, deadlocked over the problem of expanding the salmon fishing regulatory area. Japanese delegate Takasaki met with Soviet representative Ishkov, according to a translation from the Japanese periodical *Sankei Shimbun* of April 12, 1962.

During three lengthy meetings Takasaki had with Ishkov, which lasted from 3 to 5 hours, Takasaki had endeavored to persuade the Soviet Union to modify its attitude. The Japanese delegation led by Takasaki was determined not to yield to the Soviet demand to expand the regulatory area to include waters south of 45° N. latitude, even if it meant sacrificing the salmon catch.

* * * * *

JAPANESE SEND TOP OFFICIAL TO MOSCOW IN ATTEMPT TO BREAK DEADLOCKED FISHERY TALKS:

In an effort to break the deadlock at the sixth Northwest Pacific Fisheries Commis-

sion meeting (Japan-U.S.S.R.) in Moscow, Japanese Agriculture and Forestry Minister Kono, accompanied by the presidents of two of the largest fishing companies as advisors, left Tokyo on May 1, 1962, for Moscow. At Moscow, Minister Kono met Premier Khrushchev, Deputy Premier Mikoyan, and Fisheries Chief Ishkov. The Minister hoped to break the deadlocked negotiations by offering to fix the annual Japanese total salmon catch, within Treaty waters, at 60,000 metric tons, reports the Japanese periodical *Suisan Keizai Shimbun* of May 1 and 2, 1962.

Prior to his departure, Minister Kono held a meeting on April 30 with Foreign Minister Kosaka, State Minister Miki, and Fisheries Agency Director Ito to confer on the final position Japan should take in pursuing the negotiations. As a result, a decision was reached to: (1) oppose any Soviet attempt to extend the regulatory area south of 45° N. latitude; (2) give Minister Kono full authority to deal with the problems related to catch regulation and fishing area restrictions; and (3) assume a flexible attitude toward the matter of applying stricter control over the catch outside Treaty waters, for the Soviet Union was likely to apply much pressure on this problem. The Soviet Union's attitude was expected to harden, particularly since the Japanese Government had authorized salmon fishing in the unrestricted waters south of the Treaty area, according to the Japanese periodical.

The Japanese proposal to limit Japan's catch within Treaty waters to 60,000 metric tons is reported to be the lowest of all offers made by Japan in the past six years. At the 1961 negotiations, Japan had proposed a catch limit of 80,000 metric tons, which was the previous lowest offer. (Editor's note: Japan finally settled for a catch quota of 65,000 metric tons in 1961.)

The decision to make the low 60,000-ton offer was based on the fact that the 1962 salmon season is expected to be a poor year, according to Russian and Japanese scientists,

International (Contd.):

and Japan wants to seek an early settlement without haggling over catch quotas. Also, by reducing the Japanese salmon fleet operating in the Treaty waters by 10 percent and by voluntarily seeking to regulate the catch in the non-Treaty waters (instead of being pressed by the Soviet Union to accept a low quota as in years past), Japan hoped to seize the initiative at the fisheries negotiations and eliminate the mutual distrust existing between the Soviet Union and Japan. However, Japan does not ever intend to compromise the catch quota to anything less than 60,000 tons, according to Minister Kono, who hoped to reach an agreement with the Soviet leaders in about two weeks, the Japanese periodical points out.

* * * * *

JAPANESE AND SOVIETS REACH AGREEMENT ON NORTH PACIFIC SALMON AREAS AND CATCH QUOTAS:

The sixth annual meeting of the International Northwest Pacific Fisheries Commission (Japan-U.S.S.R.) was formally concluded on May 12, 1962. The meeting was held in Moscow. By the terms of this year's agreement, Japan and the Soviet Union agreed to establish two areas, to be referred to as Area A and Area B. Area A includes the waters to the north of 45° N. latitude (present treaty waters) and Area B the waters to the south of 45° N. latitude. The following regulations will apply to the two areas in 1962:

Catch: Area A - 55,000 metric tons; Area B - 60,000 metric tons. The quota for Area A is 10,000 tons less than in 1961.

Fishing Season: Area A - For mothership-type operations, season will commence May 15 and end August 10. For land-based gill-net fishery, season will open on June 21 and close August 10. Area B - For land-based gill-net and long-line fishery, season will commence April 30 and close June 30.

Fishing Gear: Area A - Catcher vessels assigned to the mothership fishery will employ gill nets with knot-to-knot mesh sizes of 60 millimeters (about 2.4 inches or more), of which over 50 percent must consist of nets with knot-to-knot meshes of 65 mm. (about 2.6 inches). In 1963, over 60 percent of the gear must be 65-mm. mesh nets. Use of long-line gear will be prohibited. Area B - Length of gill nets to be fished by any one vessel will be reduced from 15 kilometers (9 miles) to 12 kilometers (7.2 miles) in 1963. Gill nets with knot-to-knot mesh sizes of over 55 millimeters (about 2.2 inches) will be used. Long lines with ganging lines of over 0.522 mm. (0.02 inch) in diameter will be employed.

Japan and the Soviet Union agreed that regulatory measures for Area B will be enforced by Japan in 1962, but the Soviet Union reserves the right to place observers on Japanese patrol vessels. Enforcement in Area B will henceforth be regulated under Article VII of the Russo-Japanese Fisheries Treaty and methods of enforcing regulations in Area B in 1963 will be subject to the approval of the Northwest Pacific Fisheries Commission.

Japan and the Soviet Union also agreed that the catch quota for Area B in 1963 may be raised up to 10 percent from this year's 60,000-ton quota, in accordance with recommendations submitted by the fisheries scientists of the two governments. Catch quota for Area B in 1964 will be negotiated at the seventh annual meeting of the Commission in 1963. Catch quota of Area A in 1963 will be subject to negotiations at the same meeting. (Nippon Suisan Shimbun, May 9 & 11; Shin Suisan Shimbun, May 14, 1962.)

Editor's Note: Up to this year Area B (waters south of 45° N. latitude) had been under the unilateral jurisdiction of Japan and catch quotas were established unilaterally by Japan. Area A (waters north of 45° N. latitude) was the only area under the joint control of Japan and Russia prior to this year. The Japanese started fishing in Area B on April 30 even though agreement with Russia had not been reached on that date. In Area A fishing started on May 15.

Final agreement was reached outside the Commission meetings by Japanese Agriculture and Forestry Minister Kono (who went to Moscow early in May accompanied by the presidents of two of the largest fishing companies as advisors) and Soviet Fisheries Chief Ishkov.

The Soviet Union and Japan on April 12 reached agreement on the 1962 Northwest Pacific king crab production quota, according to translations from the Japanese periodicals *Suisan Tsushin* (April 14 & 16) and *Suisan Keizai Shimbun* (April 15, 1962).

The total production quota was set at 315,000 cases of 96 5.5-oz. cans. Converted to Japanese case size, this amount is 630,000 cases of 48 No. 2 or 6.5-oz. cans. Of the total, the Soviet Union's share is 189,000 cases (equivalent to 378,000 Japanese cases) and Japan's share 126,000 cases (equivalent to 252,000 Japanese cases). This year's quota for the Soviet Union is 3 percent less than the quota of 195,000 cases in 1961, and for Japan it is also 3 percent less than the 130,000 cases in 1961.

The Soviet Union will operate six king crab fleets; Japan four fleets. Fishing regulations covering fishing areas, fishing period, and gear restrictions are the same as in 1961. In accepting the lower quota this year, the Japanese side stipulated that they were not acknowledging that the crab stocks in the Kamchatka area were in a state of decline.

Japan will operate the factoryships *Yoko Maru* (5,784 gross tons), *Kaiyo Maru* (5,500 gross tons), *Hakuyo Maru* (6,430 gross tons), and *Seijo Maru* (6,054 gross tons). All four factoryships departed for the fishing grounds in the Okhotsk Sea by April 16.

Crab fishing by the Japanese and Soviets in the North Pacific is regulated in terms of the canned crab meat pack. This type of fishing was unrestricted in 1957, but beginning with 1958 there have been restrictions imposed. Japan's quota has been progressively reduced, with this year's quota 21 percent smaller than the 1958 quota.

Note: See Commercial Fisheries Review, May 1962 pp. 42 and 60; March 1962 p. 32; February 1962 pp. 50 and 82; January 1962 p. 43; July 1961 pp. 40 and 75; August 1961 p. 47; October 1961 pp. 41 and 43.

INTERNATIONAL PACIFIC SALMON FISHERIES COMMISSION

SOCKEYE AND PINK SALMON STUDIES

The Seltzter Creek Field Station being built for the International Pacific Salmon Fisheries Commission by the Canadian Government was in partial operation as of late May 1962. The laboratories will not be fully staffed or equipped with the required automatic temperature controls until this fall at which time a public inspection will be arranged. Some exploratory experiments already are in operation to aid in



International (Contd.):

designing a full scale investigation into the cause of: (1) the relation of Fraser River flow to the adult survival of sockeye salmon; (2) the relation of temperature and salinity in Georgia Strait to the adult survival of pink salmon.

The State of Washington has indicated that salt-water facilities may be made available to the Commission at their Bowman's Bay Station near Anacortes. These facilities will be of considerable value in the study of sockeye yearlings and pink salmon fry during the period of estuarial interchange.

The downstream migration of sockeye smolts from Chilko Lake is almost complete for 1962 with a record number of 39 million fish estimated through mid-May. Trapping gear operated at Mission, B. C., revealed that the Chilko migrants reached Mission (a distance of 300 miles) in 3 to 5 days. This downstream migration rate is faster than previously believed possible. Studies will now be undertaken to determine the effect of delaying the entry of experimental groups of Chilko migrants into salt water by the time required to pass through a theoretical reservoir such as that which would be created by Moran Dam.

The artificial spawning channel at Seton Creek, in operation for the first time in the fall of 1961, received 6,711 pink salmon or 11 percent of the total pink salmon escape-



Pink Salmon
Oncorhynchus gorbuscha

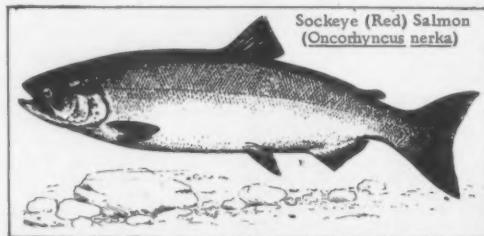
ment to Seton Creek. Spawning was 98 percent effective which demonstrated the suitability of the channel for natural spawning. The suitability of natural spawning grounds is generally indicated by the success of egg deposition. Of the total of 6,723,000 eggs estimated to have been naturally deposited in the channel, 52 percent or 3,550,000 survived to healthy fry on the basis of final counts. The total capacity of the channel is 10,000 fish and this capacity should be fully utilized when the run returns in 1963. The success of this and other properly designed

artificial spawning channels is fully justifying this method as a limited substitute for natural spawning grounds. The increasing adult return to the Jones Creek Channel near Hope, B.C., indicates that the fry produced by this method have a normal survival rate to maturity.

It would appear that all conditions as of May were favorable for the survival of pink salmon returning as adults in 1963. Spawning and incubation conditions were excellent. The fry hatch appeared very good considering that the 1961 escapement was below that believed necessary for a maximum run. The marine factors related to adult survival appeared to be optimum.

Extensive observations on the distribution and growth of sockeye fingerlings and pink salmon fry are being carried out between the mouth of the Fraser River and Race Rocks. Complete environmental records are being accumulated as a basis for extensive laboratory work to be conducted as the necessary facilities are made available. A substantial increase in the number of pink salmon fingerlings over the number present in 1960 is quite obvious throughout the Gulf and San Juan Island areas.

Two sources of mortality occurred during the downstream migration of sockeye smolts this spring.



Sockeye (Red) Salmon
Oncorhynchus nerka

Failure on the part of the Seton Creek power plant to maintain full load during the downstream migration of sockeye from Seton Lake resulted in a serious loss of migrants. When the power plant is on full load the measured mortality is less than 10 percent. When the plant is on partial load as it was during the peak of this year's migration, the mortality can be very serious. During the downstream migration in the previous cycle year a similar part-load plant operation was associated with a 62 percent decline in the returning adult sockeye run. It may be expected as a result of this year's mortality from the power tur-

International (Contd.):

bines that a further decline will be evident in the Seton Creek sockeye run returning in 1964.

The first available evidence indicated that the dead fish floating in the Lower Fraser during late April and early May 1962 originated at the Seton Creek power plant. Later it was found that the fish killed at Seton Creek were sinking to the bottom of the river and the floating fish were of Chilko Lake origin. The cause of death of the Chilko fish observed has not yet been assessed, but present indications are that natural conditions may be responsible. No artificial factor has been located to date and pathological studies are continuing on the specimens collected. The exact extent of the Chilko mortality is not known but based on the test catches of healthy Chilko fish at Mission it is not believed to be a significant part of the record migration of 39 million fish.

* * * * *

**THREE NATIONS STUDYING
NORTH PACIFIC SALMON MIGRATIONS:**

One of the greatest cooperative fishery investigations ever attempted is providing answers to questions about the Pacific salmon that have gone unanswered since research into the species began.

Scientists of Canada, the United States, and Japan are now in the seventh year of a program formulated by the International North Pacific Fisheries Commission to find out exactly where the salmon live between the times they leave their native rivers and return there to spawn. The big question is whether salmon from North America intermingle with salmon from Asia and, if so, whether another line than the provisional eastward limit of Japanese salmon fishing at 175° W. could be shown to divide the salmon from the two continents more equitably.

Six full years of detective work have shown that intermingling does take place, but that the salmon don't get lost. Inevitably, when the time comes, the North American salmon head eastward and the Asian salmon westward to spawn in the fresh waters where they originated.

The distribution of salmon throughout the North Pacific Ocean and the Bering Sea is very broad, and the vastness and complexity

of this distribution combine to create a gigantic puzzle. However, the scientists have found out that the intermingling in the Aleutian area, for instance, takes place over more than 25 degrees of longitude, with salmon crossing the provisional line in both directions in large numbers.

A comprehensive joint report is expected to be made by the Commission in the next two years.

The methods used by the biologists in tracing the movements of salmon in the high seas are varied. Research vessels fish in many locations and their results, as well as the results of the commercial fisheries, are closely studied to determine the origin of the fish caught. Origins can be traced by the recovery of tagged or fin-clipped fish which have been intercepted on their way to sea, and also by foreign bodies carried by fish, which vary from area to area of the two continents. It has also been discovered that scale patterns on Asian fish differ from those of North American fish. (Canada's Department of Fisheries Trade News, April 1962.)

EUROPECHE

**NEW ORGANIZATION MADE UP OF
EUROPEAN FISH PRODUCERS'
ORGANIZATIONS:**

The various professional national organizations of fish producers in the European Economic Community (EEC) have formed an organization named "EUROPECHE." The new organization came into being on May 4, in Brussels, Belgium.

The aims of "EUROPECHE" are: (1) To reach a common viewpoint in connection with the fishery problems resulting from the coming into force of the EEC or from the development of the EEC. (2) To make known to the EEC organizations the Organization's common viewpoints, whether asked for by those organizations or not.

Note: Also see Commercial Fisheries Review, May 1962 p. 52.

EUROPEAN ECONOMIC COMMUNITY

**SECOND ACCELERATION IN
TIMETABLE FOR ESTABLISHMENT
OF CUSTOMS UNION:**

The Council of Ministers of the European Economic Community (EEC) on May 14, 1962, approved a second acceleration in the timetable for the establishment of the Community's customs union.

International (Contd.):

On July 1, 1962, import duties on products moving in intra-EEC trade will be reduced by another 10 percent for industrial products and by another 5 percent for liberalized agricultural products (those not subject to intra-EEC quotas).

However, duties on non-liberalized agricultural products and on items included in the Common Agricultural Policy for which variable levies will become effective on July 1, 1962, will not be further reduced on that date.

The establishment of a customs union is one of the main objectives of the EEC.

During the transitional period, which is now likely to end earlier than 1970, as provided for in the Rome Treaty, member states are gradually reducing their internal tariffs and are adapting their external tariffs to the rates of the Common External Tariff (CXT).

At the end of this process, each of the member states will levy identical duties on goods imported from non-member countries and will admit goods from other EEC countries free of customs duties.

With this second acceleration, import duties on products moving in intra-EEC trade will have been reduced by a total of 50 percent for industrial products and 35 percent for agricultural products. The next reduction of internal duties is to take place July 1, 1963, and will be an additional 10 percent for all products, bringing the total reduction in internal duties on industrial products to 60 percent.

The Council said the second movement in aligning the external duties toward the CXT is also to be accelerated.

On July 1, 1963--the date when internal duty reductions will reach the 60 percent mark--member states again will adjust their external duties, by 30 percent of the difference between their individual base rates and the CXT.

Originally, this second movement was not to have taken place until December 31, 1965.

The third external adjustment--the final adjustment which will put the CXT rates in

to full effect--must take place at the end of the third stage of the transitional period, which is likely to end before the date of January 1, 1970, provided in the Rome Treaty. (Foreign Commerce Weekly, May 21, 1962.)

EUROPEAN TRADE FAIRS

UNITED STATES FOOD-PROCESSING INDUSTRY INVITED TO SELL AT TRADE FAIRS:

The United States food-processing industry has been invited to place its products on sale in United States Government food exhibits at leading European trade fairs this year and to join in a program to increase export sales of processed and packaged foods.

The "test-selling" food exhibits, sponsored by the Department of Agriculture, have been successful on an experimental scale in the past two years at food fairs in England, France, and the Federal Republic of Germany.

The first of these fairs to be held this year will be the Manchester Grocers Exhibition at Manchester, England, May 8-19. Others will be at London, England, August 28-September 12; Munich, Germany, September 21-30; and Brussels, Belgium, October 20-November 4.

At the United States Food Fair in Hamburg, Germany, last fall, demand for packaged, precooked, and frozen foods was the heaviest yet experienced.

In addition to a "superette" stocked with American convenience foods, the Hamburg Fair featured commercial exhibits by German firms handling United States products.

These exhibitors estimated that wholesale orders taken at the fair for future delivery amounted to nearly \$250,000, and Hamburg merchants plan a follow-up promotion of United States foods this spring.

Participation in the 1962 food exhibits is open to all United States food processors whose products originate in the United States. There will be no charge for display space, but the processor will be responsible for delivery of his products to the exhibit at his own expense.

For the Manchester Grocers Exhibition, the Department of Agriculture is preparing a market promotion exhibit to occupy about 23,000 square feet of floor space, much of which will be devoted to a self-service market where food items furnished by United States processors will be sold.

In addition to the self-service sales area, the exhibit will include displays and kitchen and demonstration areas for major United States agricultural export commodities arranged in cooperation with trade and producer organizations.

The exhibit will also include a trade lounge and a program of promotional events designed to bring together United States businessmen and British food wholesalers, chain store buyers, and other trade representatives.

The Manchester Grocers Exhibition, northern England's top grocery and provision show, is arranged by the trade and brings in distributors and chain store buyers from all over the British Isles.

Manchester is the hub of a metropolitan area containing nearly 2,500,000 people and 750,000 households.

United States food processors can obtain details about the 1962 program by writing to the Grocery Manufacturers of America, Inc., 205 East 42nd Street, New York 17, N.Y., which is coordinating arrangements as a service to the Department of Agriculture. (Foreign Commerce Weekly, U.S. Department of Commerce, April 16, 1962.)

International (Contd.):

OCEANOGRAPHY

INDIAN OCEAN EXPEDITION:

With 18 delegates from six countries in attendance, the First Southeast Regional Conference of the Indian Ocean Oceanographic Expedition convened in Lourenco Marques, Mozambique, April 30-May 3, 1962. The Conference was organized by the Special Committee for Oceanographic Research (SCOR) under the sponsorship of UNESCO and with the cooperation of the International Council of Scientific Unions. Captain (USNR) Robert G. Snider is the Coordinator of the entire Indian Ocean Expedition and was Chairman of the Conference. Other delegates were from Portugal, South Africa, the Malagasy Republic, France, Great Britain, and the United States.

According to Captain Snider, the Indian Ocean Expedition will be an undertaking without precedent in the history of oceanography and will represent the first attempt to study scientifically an ocean in its totality. Its purpose is to obtain new data on the Indian Ocean which will permit more accurate weather forecasting, the charting of more economical navigation routes, the location of specific fishing areas, the compilation of new hydrographic charts, the discovery of additional sea currents, the exploitation of the mineral wealth of the Indian Ocean, and a greater understanding of complex wind patterns. It is hoped that the collected information will lead also to an eventual improvement in the diet and health standards of the various peoples living along the Indian Ocean littoral who together comprise about one-quarter of the world's population. It is expected that the many projects making up the complete Expedition will not be terminated before mid-1965.

For purposes of the Expedition, the area of the Indian Ocean (14 percent of the earth's surface) has been divided into six regional zones. More than 40 hydrographic and other vessels of diverse nationalities will take part in the three-year program. Several hundred scientists from 35 countries will be assigned tasks among the various separate projects and the entire Expedition is expected to cost between \$13 and \$19 million.

At the Lourenco Marques Conference, an effort was made to coordinate into a common plan the participation of those countries mak-

ing up or having interests in the Southeastern Zone, i.e. Portugal, South Africa, the Malagasy Republic, Great Britain, and France. The United States will also take part in this Zone's activities. Altogether, 16 vessels will be used to carry out the work of the Expedition in the Southeastern Zone--8 from the United States, 2 from Great Britain, 2 from South Africa, 2 from the Malagasy Republic, 1 from Portugal, and 1 from France. Portugal, through the Mozambique Naval Command, will make available to UNESCO the hydrographic ship Almirante Lacerda which will carry out extensive cruises along the Mozambique and Malagache coasts and throughout the Mozambique Channel as far south as Durban. (United States Consulate, Lourenco-Marques, report of May 1, 1962.)

* * * * *

LATIN AMERICA OCEANOGRAPHY AND MARINE RESEARCH:

Four important meetings concerning oceanography and marine research development in Latin America were held in Chile the latter part of 1961. They were the Latin-American Seminar of Oceanographic Studies; the 2nd Latin-American Symposium on Plankton; the Meeting of Directors of Latin-American Laboratories; and a Regional Training Course on Marine Biology. The meetings were organized by the UNESCO Science Cooperation Office for Latin America, jointly with the University of Concepcion in the case of the first two meetings and with the University of Chile in the case of the latter two.

A total of 37 Latin-American scientists participated, from Mexico, Colombia, Venezuela, Brazil, Uruguay, Argentina, Chile, Peru, and Ecuador. There was an observer from the National Science Foundation (United States), the Stazione Zoologica di Napoli (Italy), the chief of the Federal Republic of Germany's Technical Assistance Program to Chile.

For the Regional Training Course, the professors were scientists from Mexico, Chile, Uruguay, Argentina, and Brazil, and the students were from Latin-American countries.

The main purpose of the meetings was to make an evaluation of the present status of research in marine sciences in Latin America in the light of what has been accomplished. Accordingly, a series of reports covering the different disciplines of marine science were

International (Contd.):

requested from, and submitted by, leading scientists of Latin America. It was also felt that some decision should be taken so as to increase existing knowledge through research and training, primarily on a cooperative regional basis.

Among the most outstanding resolutions and recommendations adopted were the following.

(1) Creation of a Latin-American Council on Oceanography, with an elected steering committee composed of leading marine scientists from Mexico, Venezuela, Uruguay, Argentina, Chile, and Brazil. This council should become a permanent Latin American Council once the necessary official steps are taken throughout all the Latin-American countries; the secretariat will be located at the UNESCO Science Cooperation Office for Latin America, Montevideo, Uruguay.

(2) Establishment of research programs on a regional, coordinated basis. Seven projects were presented, and necessary measures are now being taken for the coordination of some of these by the existing marine biology laboratories and oceanographic institutes, with the help of the hydrographic naval services.

(3) Publication of a "Latin-American Directory of Oceanographic Institutions and Scientists" so as to implement the exchange of scientists, students, information, and material, with the UNESCO Science Cooperation Office acting as a clearinghouse.

(4) The unification and standardization of methods and equipment in marine research.

(5) Organization by UNESCO, in 1962, of a 2 months' training course in physical oceanography. The Oceanographic Institute of the University of Oriente (Venezuela) offered to act as host, and the Brazilian Navy offered its oceanographic vessel, the Almirante Saldanha, for a training cruise to complement the course.

(6) Organization by UNESCO, in 1962, of a regional symposium on the biogeography of marine organisms for the purpose of studying the geographical distribution of such organisms and the effects upon them of the physicochemical condition and dynamics of water masses. The National Museum

of Natural History "Bernardino Rivadavia" of Argentina officially offered to act as host upon the occasion of its 160th anniversary.

(7) Organization by UNESCO, in 1962, of a meeting of deans of science faculties of Latin-American universities for the purpose of raising scholastic standards for the education of marine scientists through the reorganization and modification of curricula and plans of study.

UNESCO's Science Cooperation Office is preparing to implement recommendations 5, 6, and 7 by building up the bibliographic reference library on marine sciences in Latin America which it has already started, with profitable results. For this purpose, each scientist present at the meeting planned to send in a contribution in his specific field. To further this program, it is requested that all scientists and institutions send two reprints of any of their publications that deal with any aspect of marine sciences in Latin America to the UNESCO Science Cooperation Office for Latin America, Montevideo, Uruguay. (Science, March 2, 1962.)

INTER-AMERICAN TROPICAL TUNA COMMISSION

MEETING FOR 1962:

The 1962 meeting of the Inter-American Tropical Tuna Commission convened May 16, 1962, in Quito, Ecuador. All member countries (United States, Ecuador, Panama, and Costa Rica) were represented, and observers were present from Japan, El Salvador, Nicaragua, Honduras, Mexico, Guatemala, Chile, and Peru.

The principal business on the agenda was a proposal to conserve stocks of yellowfin tuna by imposing a limitation on the catch. The Commission approved an over-all quota of 83,000 short tons for the calendar year 1962 for the Eastern Pacific area extending off the coast of North and South America between Eureka, Calif., and 30° South latitude. There is a catch quota of 78,000 tons (expected to be reached in September) and an additional 5,000 tons reserved for incidental catch between September and the end of the year.

The 1963 meeting will take place in Colombia (if Colombia joins the Commission) or in San Diego, Calif. A total budget of \$624,835 was approved for fiscal year 1963/1964, of which the United States share would be \$594,985. (United States Embassy, Quito, May 17, 1962.)

Aden

FISHERIES DEPARTMENT TRYING TO DEVELOP FISHING INDUSTRY:

The plentiful fish in the waters off the Aden Protectorate's coast constitute a commercially-valuable resource which is as yet virtually untapped. The Fisheries Department, which is responsible for teaching new methods and developing the marketing and use of fish products, is rapidly approaching a stage beyond which it cannot proceed without the availability of freezer capacity and assured markets. The improvement of fishing methods, largely through use of nylon nets and purse-seining, are resulting in larger catches for what is now a limited local market.

At present, frozen fish is imported into Aden for the European residents and canned tuna caught some distance off Mukalla by foreign vessels is imported in Mukalla. As a result of this situation, the Fisheries Department is attempting to educate the European market in Aden to the quality of local fish and at the same time to cut, package, and freeze local varieties for sale in Aden and elsewhere.

Under the Protectorate Development Plan, the Cooperative and Marketing Department is planning to build a freezer in Mukalla. Whether this will be of 200- to 500-ton capacity (as a United States representative of a large tuna cannery suggested as a minimum) is not known at this time. Another United States businessman has exported some turtles to Europe, but has not as yet received permission to establish a spiny lobster industry to operate primarily in the Mukalla area.

The Fisheries Department has expanded its operations in the Federation and the Eastern Protectorate with the stationing of an Assistant Fisheries Officer at Mukalla and one at Shuqra in the Federation. During 1961 the Federation received a fishing vessel (The Federal Star) and the officer at Shuqra works closely with the vessel to teach new methods to the local fishermen. The arrival of this vessel has made it possible for the Fisheries Department vessel Gulf Explorer to devote more time to training and research off the Eastern Protectorate.

In a report on the industrial potential of the Colony and Protectorates, fisheries were cited as the most likely area of expansion. To implement the report, the Government

has stated that a permanent Working Committee on Fisheries will be established and efforts will be made to persuade London to provide more funds for fisheries development. (May 1 report from Aden.)



Angola

NEW FISHERY ENTERPRISE PLANNED:

The Boletim Oficial of Angola on April 18, 1962, contained a notice of the concession granted to a Metropolitan Portuguese firm. The firm was granted permission to construct a fish-processing plant, operate trawlers, and purchase the catch of other fishing vessels in the Mocamedes area. The firm is to invest 47,000 contos (approximately US\$1,645,000) in trawlers and a plant with a daily capacity of 5 to 10 metric tons of frozen fish, 10 to 20 tons of canned fish, and 100 to 150 tons of fish meal. The plant will also have a refrigerated storage capacity of 350 tons. (United States Embassy, Luanda, May 3, 1962.)



Australia

CANNED TUNA IMPORTS:

Australia's imports of canned tuna have increased rather than declined since the import tariff increase of October 1961. Consequently, a continuation of this trend, if accompanied by larger than normal domestic catches, could well lead to additional requests to the Government for protection against imports.

Australia's Canned Tuna Imports by Months, 1961 and January-February 1962

	Lbs.
1961:	
January	60,168
February	20,117
March	43,590
April	56,143
May	38,978
June	99,027
July	47,199
August	56,523
September	21,745
October	57,546
November	35,889
December	114,474
Total 1961	651,399
1962:	
January	85,295
February	1/149,277
<i>1/Preliminary, subject to revision.</i>	

On the basis of the Tariff Board Report of September 11, 1961, on "Fish In Airtight Containers," the import duty on canned tuna was increased from 1 pence to 7 pence (0.9 U.S. cent to 6.6 cents) per pound British Preferential tariff and from 3 pence to 9 pence (2.8 cents to 8.4 cents) per pound

Australia (Contd.):

Most Favored Nation tariff. The increased duties went into effect on October 26, 1961, and apply to "tuna, including fish of the suborder Scombridae, specifically albacore, bluefin tuna, big-eyed tuna, bonito, dogtooth tuna, skipjack or striped tuna, yellowfin tuna."

The Tariff Board report follows the pattern of other reports on requests for tariff increases. These reports weigh both sides of the evidence presented, including the profitability of the industry seeking a tariff increase. In this instance the Board granted an increase, although less than the industry had requested.

A report from Sydney states that as of early 1962 there had been no marked effect so far on the market in Australia for imported tuna, mainly because of the very small catch in New South Wales during the last season. As a result of the short supply domestic producers had encountered no difficulty in disposing of their pack. A large domestic packer was also reported as having stated that his industry was more concerned at the moment with developing standards for packing and labeling than with price competition from imports. Imported Peruvian tuna is the bonito which is reported to be of lower quality as well as lower price than the Australian.

One importing firm in Melbourne reported early this year that imported Peruvian and Japanese tuna was no longer competitive in price. Another attributed the decline in sales of the imported product to the preference for the Australian product because of its higher quality rather than to a price differential. He added that Peruvian and Japanese packers had reduced their prices to offset the tariff increase. (United States Embassy, Canberra, reports of March 26 and 28, 1962.)



Brazil

"MANJUBA" OR ANCHOVY FISHERY OF SOUTHERN BRAZIL:

From October to March, during the Southern Hemisphere spring and summer, the small anadromous "manjuba" or anchovy (*Anchoviella hubbsi*) swarms from the ocean into the fresh waters of the Ribeira de Iguaape River in the southern part of the highly in-

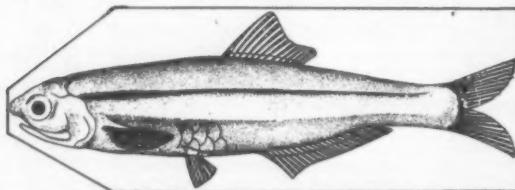


Fig. 1 - "Manjuba" or anchovy, *Anchoviella hubbsi* Hildebrand, family Engraulidae. Maximum length: 13 cm. (about 5 inches).

dustrialized state of Sao Paulo, Brazil (figs. 1 and 2). In the river, it is fished in quantities up to 1,000 metric tons a month. Fishermen use dugout canoes to set their beach seines. Each seine is over a hundred yards long, up to ten feet in depth, and with a fine mesh. At times there are over 1,000 of the nets in operation.

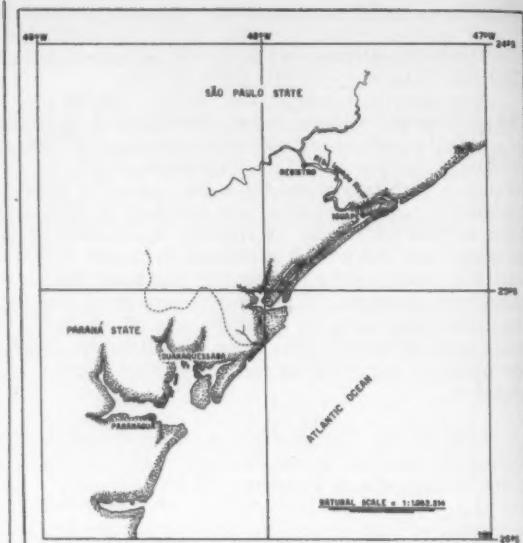


Fig. 2 - Map showing location of the "manjuba" or anchovy fishery (Ribeira de Iguaape River). A similar or the same species of fish is caught at Guarapuassaba Bay, along the coast of the State of Paraná.

Some of the catch is sent fresh to the city of São Paulo, where there is a large Japanese colony, but most of it is salted and dried, to be consumed later by the Japanese colonies in São Paulo and neighboring Paraná. The salted product is very popular among the Japanese-Brazilians, since it is quite similar to the "iriko" produced in Japan.



Fig. 3 - Fishing for "manjuba" or anchovy with beach seine in Ribeira de Iguaape River. Fisherman is hauling in the net.

The fishery was started in 1935 by Japanese tea growers in the area, but now only

Brazil (Contd.):

the commercial aspects are still handled by Japanese and their descendants.



Fig. 4 - State Fish and Game worker ready to interview "manjuba" fisherman at Ribeira de Iguape River.

Biological research on the species has been carried out since 1960 by Dr. Alvaro da Silva Braga and his coworkers of the "Grupo de Pesquisas sobre a Pesca Marítima do Estado de São Paulo" (São Paulo State Group on Marine Fisheries Research), whose base is in Santos, an important sea fishing port.



Fig. 5 - Measuring "manjuba" in dugout canoe to collect data for length-frequency studies.

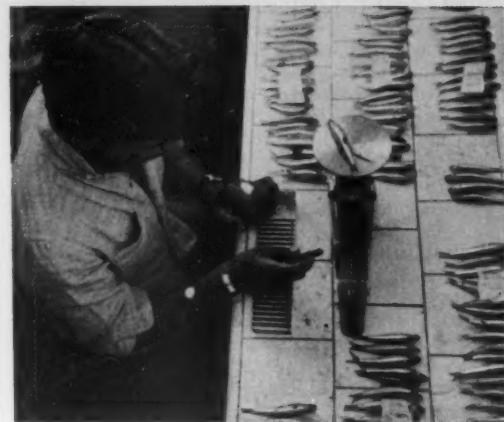


Fig. 6 - Samples of "manjuba" catches from the Ribeira de Iguape River are analyzed in the laboratory.

Among the problems under study with the assistance of FAO, is the question of whether the "manjuba" really enter the river to spawn, since the eggs have not yet been observed. To help solve this and other aspects of the problem, a small station is maintained at Registro, with two biological assistants who continually collect data on catch, effort, size of fish caught, etc.

--Hitoshi Nomura, Fishery Biologist,
Grupo de Pesquisas sobre a Pesca Marítima,
Santos, State of São Paulo, Brazil.



British Guiana

FISHERY TRENDS, 1961:

The fishing fleet engaged in 1961 in coastal, estuarine, and deep-sea fishing consisted of 13 schooners, 34 trawlers, and over 500 smaller vessels, many of which are powered by outboard engines. The smaller vessels operate Chinese and pin seines and carry on line fishing; the schooners are almost entirely engaged in fishing for red snapper. There are approximately 1,200 persons engaged in the industry, and the main fishing methods are: Chinese seine, "cadell," pin seine, snapper fishing, and trawling (fish and shrimp).



Red Snapper
Lutjanus blackfordii

Fish is distributed through the Wholesale Fish Market and Centre which is operated by the Government Marketing Division. It pro-

British Guiana (Contd.):

vides wharfage, a tractor for transporting fish, a crane for general use, facilities for preserving and hanging seines, ramp for repairing small boats, grid for repairing large boats, racks for outboard engines, repair shed for engines, water, ice, cold storage, fishermen's rest, canteen, and a covered market for wholesaling the fish.

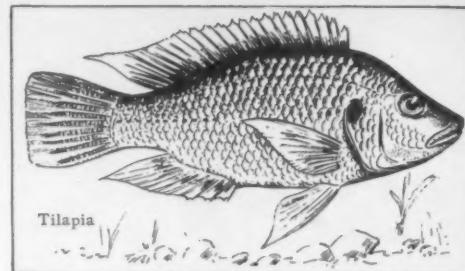
Recent developments include the use of synthetic fishing nets; introduction of brine-freezing; construction of modern fish shops in rural areas; introduction of all-purpose fishing boats; construction of modern washing tables for use in the wholesale fish market; extraction of shark-liver oil by steam and preparation of shark hides, teeth, and fins for export.

Technical assistance by the U. S. International Cooperation Administration began in March 1960. Among the programs was included the chartering of a local snapper fishing schooner to conduct an intensive fishing operation with proper equipment, including high-speed fishing reels; the organization of a commercial-type fishery training program involving the building or purchasing of a small vessel for administration and training work; the improvement and modification of existing icing, marketing, and transportation facilities; the implementation of intensive inshore trawling and observations with local craft as well as modified local craft, including a program of cooperation with foreign shrimp and fishery firms operating in the country, to obtain information on catches and offshore fisheries; an intensive study of local and foreign private fishery potential and implementation of a program to attract foreign capital as well as local capital for production of fish meal, fresh fish for the local market, as well as fishery products for export; and to conduct a study of fish culture potential in British Guiana.

The following projects are now operating: cold storage and refrigeration; local fishing firm engaged in shrimp fishing for export purposes; and local shrimp plant engaged in processing small shrimp in formaldehyde for export (to be used as bait in sport fishing).

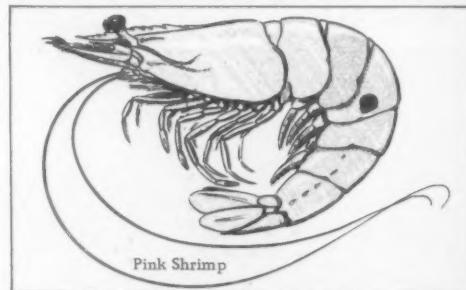
The fish culture work in British Guiana has progressed. As of early this year, over 500 ponds, varying in size from 150 square yards to 5 acres, had been established by farmers and various organizations. Most of

the ponds were stocked with tilapia distributed from the Departmental Fish Hatchery or from district demonstration ponds and the distribution of a total of 225,000 tilapia had taken place.



A brackish-water Fish Culture Station with approximately 57 acres of pond space has been established at Onverwagt, West Coast Berbice, where research work on all phases of brackish-water fish culture is being carried out.

Investigations which involve the collection of the pre-adult and larval shrimp, their identification, and the study of their growth have been carried out. Collection of pre-adult forms of about one-inch and their growth to 8 or 9 inches after a period of 7 or 8 months were observed. The shrimp grown in the ponds



have been identified as Penaeid schmitti, and P. aztecus, though specimens of P. brasiliensis and P. duorarum have been collected in the intake waters nearby. The availability of larval pre-adult shrimp in the intake waters is considerable and they are particularly numerous in the months of April-June and October-February. Life history and growth rates have been investigated.

Further studies over the systematics of shrimp and their cultivation in brackish-water ponds; seasonal variations in catches from pin seines, Chinese seines, and long lines; and systematic work on the groupers, snappers, and skinfish.

British Guiana (Contd.):

Application has been made to the United Kingdom Pool of Fisheries Scientists for an expert to be made available for a short period to study the effects of shrimp fishing on the local fishing industry.



British West Indies

BARBADOS FISHING INDUSTRY:

The supply of fish in Barbados was considerably less in 1961 than in 1960. The estimated catch during 1961 was 7,420,000 pounds valued at WI\$1,751,050 (US\$1.0 million). The revised estimate of the 1960 catch was 8,637,000 pounds valued at WI\$2,167,800 (\$1.3 million).

Catches were normal during the first quarter of the year. During the second quarter, however, when the catch is normally heavy, very few fish were actually caught. It has now been learned that this was due to unfavorable currents which took the flyingfish out of the range of the Island's fishing launches (flyingfish usually comprise 60 percent of the total catch). Few fish were caught during the third quarter of the year which included the hurricane season (July 15 to October 15). Catches for the fourth quarter were normal and the harvest of "sea-eggs" (white sea urchins) was especially good.

During the year, 48 motorized fishing launches were added to the fishing fleet bringing the total to 468. The fleet is now almost completely motor-driven.

The Barbados Government began the construction of a WI\$1.5 million (\$875,000) abattoir and fish-freezing plant during 1961. The plant, which is situated near the new Deep Water Harbor, is expected to be completed and in operation by the end of 1962. The plant will contain four frozen fish storerooms, two iced fish storerooms, one meat chilling room, one chilled meat storeroom, one ice storeroom, and two fish freezers. The plant will be able to store up to 200 long tons of frozen fish, 60 tons of iced fish, and up to 12 tons of meat. It will also be able to manufacture up to 10 tons of ice per day and will be capable of freezing 4 tons of fish per day. This plant is part of a marketing scheme for fish and will be used to stabilize the fishing industry by providing a guaranteed price for fish, even during periods of

oversupply. The fish will be frozen and distributed when the supply of fresh fish is light. (United States Consulate, Barbados, April 30, 1962.)

ST. VINCENT FISHERY LANDINGS, 1961:

Recorded fishery landings for 1961 in St. Vincent amounted to 347,803 pounds with a retail value of \$129,349 (US\$75,349). The recorded catches were estimated to be between 40 to 50 percent of total landings since for a number of small fishing bays statistics are not collected.

During the year, \$9,150 (\$5,300) was loaned by the Government to boat owners to assist them in mechanizing their boats. It is hoped that additional loans in 1962 will help to increase the mechanized fleet. Some \$11,290 (\$6,600) was loaned to Fishermen's Associations or individual fishermen to assist them in acquiring new gear and tackle.

Some 57,700 pounds of gutted, cleaned, and iced fish were transported from the Government Fish Collecting Station on Canouan to Kingstown from August 1961 to the end of the year. This was in addition to the fish sold locally. Due to large catches by St. Vincent boats and beach seines and also to a local prejudice against iced fish, marketing met considerable difficulties in Kingstown in spite of the fact that St. Vincent imports annually about 900,000 pounds of dried salted and canned fish. The imports are equivalent to over 3 million pounds fresh landed weight, compared with local landings of possibly 700,000 pounds of fresh fish.

Note: St. Vincent is part of the Windward Islands in the West Indies.



Canada

NYLON GILL NETS FOR COD FISHING PERFORM WELL:

An experiment in fishing gear that is being watched very closely in Newfoundland and which looks promising involves the use of nylon gill nets for cod fishing.

Introduced in 1961 on an experimental basis by the Newfoundland Department of Fisheries, the nylon gill nets are fast winning the approval of fishermen. Loathe at first to switch from the traditional cotton net, fisher-

Canada (Contd.):

men are becoming convinced of the effectiveness of the synthetic counterpart. In time the nylon variety will be in general use. Many fishermen, using the conventional twine nets who suffered catch failures in 1961, were amazed at the success attained by others fishing the same grounds with the new nylon nets. The results they witnessed were sufficient to "sell them" on the innovation, and this year they too intend to turn to nylon.

In the 1961 experiment the Provincial Department made available to fishermen (on credit) two makes of nylon gill nets; one 27 fathoms, 20 meshes deep, with 7-inch mesh; and the other 50 fathoms, 25 meshes deep, with 7-inch mesh. Both were found to be effective. Prior to that other makes of nets were used, including Canadian nets used extensively and successfully on the Great Lakes. In the demonstration project the Federal Department of Fisheries made available the services of a technician who instructed fishermen in the hanging and fishing techniques. The gill-net instruction courses and fishing demonstrations were carried out in conjunction with provincial authorities, and successful results were achieved in many areas.

Using the synthetic net, fishermen found their work day reduced and maintenance costs of equipment were down appreciably. Leaving port at 5 a.m., a boat using nylon gill nets usually had the catch ashore by 3 or 4 p.m., whereas with trawling the work continues into late at night.

In St. Mary's Bay, on the Southern Shore of the Avalon Peninsula, where the experiment was carried out on a fairly extensive scale, fishermen set 4 to 9 nets in a fleet, depending on depth of water, nature of the bottom, and other factors. The average catch per net was 700 pounds of cod. In one day one fisherman took 8,000 pounds with a fleet of seven nets.

At St. Shotts, fishermen using nylon gill nets made daily landings while those who continued fishing with cotton nets failed to take any fish. It was also discovered that the nylon nets could be hauled in rough weather when trawl fishing was impossible.

Convinced of the merit of the nylon gill net, the Newfoundland Department of Fisheries intends to make more of them avail-

able to fishermen this year. (Trade News, April 1962, Canadian Department of Fisheries)

* * * * *

GILL-NET INSTRUCTIONS INCLUDED IN PRINCE EDWARD ISLAND FISHERMEN'S COURSES:

As part of its program to promote greater diversification of fishing techniques, the Canadian Department of Fisheries early this year supplied a gill-net instructor for fishermen's courses in Prince Edward Island held by the Province's Department of Fisheries. The instructor, a veteran Great Lakes fisherman, was engaged by the Department on a contract basis. The courses were held in eight different fishing communities.

The instructor taught fishermen the proper way to hang a gill-net, and explained the fundamentals of this fishing method. After a brief description of the method and the theory behind gill-netting, the instructor gave a practical demonstration of how to build a net. Then he "turned the needle over to the fishermen." An experienced gill-net fisherman can hang a net in about an hour and a half, and some of the more adept pupils were rapidly gaining sufficient skill to meet this mark.



Graduates of the net and gear course prepare to test their skills.

Line, webbing, corks, leads, and other materials necessary to build a gill net cost the fisherman about C\$28. The boats used by many of the Province's lobster fishermen are approximately 40 feet in length, and these can be readily adapted for gill-netting. (Canadian Department of Fisheries Trade News, April 1962.)

The attendance at the various courses was gratifying, and although younger fishermen were in the majority, several veteran fishermen expressed keen interest in gill-netting.

* * * * *

Canada (Contd.):

GOVERNMENT SUPPLIES BAIT-HOLDING UNITS FOR NEWFOUNDLAND:

Eight additional bait-holding units were expected to be delivered this spring for erection in Newfoundland fishing settlements. These new units will bring to 45 the total number of distribution points being served by the Newfoundland Bait Service operated by the Federal Department of Fisheries. When the Bait Service was transferred to the Federal Government in 1949, 20 depots were in operation. However, three of the older depots have been replaced by the new units. During the last four years, 28 additional units have been erected as a means of extending the service to areas where bait was not available from private or public sources.



New refrigerated truck, which will operate out of Port aux Choix, will service bait holding units on the northwest coast of Newfoundland. Truck has a maximum load capacity of 14,700 pounds of bait.

These bait holding units which have been introduced during the last four years are capable of holding 15,000 pounds of bait and have given very satisfactory service. The units have made possible extension of the fishing season in many areas where the lack of bait had previously restricted fishing operations particularly in the early spring and again in the fall following the trap fishery. In order to keep these units supplied with frozen bait, the Department purchased two refrigerated trucks in 1959 and this year a third unit has been added.

A 164-foot vessel to replace the Bait Service Vessel Arctica is expected to be available for service in 1963. She will be capable of both freezing and holding bait and will have a capacity of approximately 400,000 pounds. The bait service vessel is used to transfer frozen bait from areas of surplus to areas in short supply. (Canadian Department of Fisheries Trade News, April 1962.)

Colombia**LICENSES FOR UNITED STATES COMMERCIAL FISHING VESSELS:**

As a result of negotiations conducted by the General Manager of the American Tunabot Association with Colombian authorities in April 1962, there has been established a procedure for United States fishing vessels to obtain licenses to fish in Colombian waters. Also, arrangements have been made for United States vessels to sell part of their catch to Colombian canners and fish merchants.

The procedure for fishermen wishing to secure licenses is new. Hitherto, only a few licenses had been granted, each application being individually considered and resolved on its particular merits. A law governing the matter and regulations thereunder have been in force for some time. However, due to some unsatisfactory experiences in the past plus the limited number of applications received, the Colombian authorities had not been prompted until now to set up a regular licensing system.



The procedure for vessels to secure fishing rights will include these steps:

1. Obtain a matricula (Registro de Embarcaciones Pesqueras) valid for 12 months and issued by the Director of Fisheries (Jefe de la Direccion de Caza y Pescado) upon payment of US\$300. To secure the matricula, the applicant must submit the following documents:

- a. A formal application (in Spanish) written on "papel timbrado" (easily obtained in any Colombian city).
- b. A completed matricula form (No. P.M. 500, "Registro de Embarcaciones Pesqueras").
- c. A copy (photostat) of the Ship's Document issued by the U. S. Bureau of Customs.

These documents must be presented to the Director of Fisheries in Bogota; they cannot be accepted by Colombian consular officers abroad. However, a duly empowered agent of the interested vessel in Colombia may present them and obtain the matricula. The General Manager of the United States Association has appointed an agent in Buenaventura for the Association. He is an American citizen engaged in the fishing business in that port.

2. Obtain a fishing license issued by the Director of Fisheries upon payment of a fee of \$6.00 per net registered ton for vessels fishing off the Pacific coast or \$8.00 per net registered ton for those fishing off the Atlantic coast. The license is valid for 100 days.

Colombia (Contd.):

In the case of American Tunabot Association vessels fishing in South American waters, the General Manager stated that they would obtain matriculas each year whether or not they fished in Colombian waters. In the event that the movement of fish brought them to Colombian waters, they would communicate with the Association's agent who would secure a license; they would then put it to pick it up.

During his talks, the General Manager of the Association gave assurances that vessels of his Association would deliver a certain part of their catch to Colombia fish canners and merchants. Specifically, he said the delivery would consist mainly of red snapper, white fish, and undersized tuna. He stressed, however, that a reasonable price must be paid for these fish if United States vessels were to be encouraged to catch them. He said that a scale of prices suggested by a Colombian buyer seemed attractive. The proposed prices are as follows: red snapper US\$200 per metric ton (9.1 cents a pound); white fish \$190 a ton (8.6 cents a pound); undersized tuna \$140 a ton (6.4 cents a pound).

The foregoing procedures and arrangements represent a constructive step which should reduce, if not eliminate, problems such as those surrounding the recent detention of a United States tuna vessel off Buenaventura. (United States Embassy, Bogota, report of May 4, 1962.)



Denmark

FISH FILLETS AND BLOCKS AND FISHERY INDUSTRIAL PRODUCTS EXPORTS, MARCH 1962:

Denmark's exports of fresh and frozen fillets and blocks during the first three months of this year were 18.1 percent or almost 3.5 million pounds greater than in the same period of 1961. The exports of cod and related species dropped 6.3 percent, but flounder and sole fillets were up 15.9 percent and herring fillets were up 129.2 percent. During the first three months this year exports to the United States of fresh and frozen fillets and blocks of 3.4 million pounds (mostly cod and related species) were down 22.7 percent from the exports of almost 4.4 million pounds in the same period of 1961.

Denmark's exports of fresh and frozen fish fillets and blocks during March 1962 were up 30.5 percent or almost 2.4 million pounds. Of the total exports, 1.6 million pounds (mostly cod and related species) were shipped to the United States in March.



Fishing cutters in the harbor of the port of Kalundborg, one of the smaller Danish fishing ports.

Denmark's Exports of Fresh and Frozen Fish Fillets and Blocks and Fishery Industrial Products, March 1962/

Product	March		Jan.-Mar.	
	1962	1961	1962	1961
<u>Fillets and Blocks:</u>				
Cod and related species .	5,213	4,956	10,598	11,312
Flounder and sole	1,988	1,739	5,475	4,722
Herring	2,835	912	6,359	2,774
Other	27	102	114	238
Total	10,063	7,709	22,546	19,096
<u>Industrial Products:</u>				
Fish meal, fish solubles, and similar products . .	7,242	4,741	14,074	9,923

^{1/}Shipments from the Faroe Islands and Greenland direct to foreign countries not included.

Denmark's exports of fish meal, fish solubles, and similar products in January-March 1962 were up 41.8 percent or 4,151 tons from the same three months a year earlier.

During March 1962, Denmark exported 52.8 percent or 2,501 tons more meal, fish solubles, and similar products than in the same month of 1961. The principal buyers were the United Kingdom, West Germany, and the Netherlands.

* * * * *

FOURTH INTERNATIONAL FISHERIES TRADE FAIR:

The Fourth International Fisheries Trade Fair was held in Copenhagen, Denmark, from April 14 to 23, 1962. It attracted 55,000 visitors from 39 countries. There were displays by 230 exhibitors from 14 countries. Most of the products were marine engines, vessel equipment, and twine for fishing gear. Exhibits of fish processing equipment were less numerous than might have been expected. Half of the exhibitors were Danish but there also was substantial representation from the United Kingdom, West Germany, Norway, Sweden, and Japan. Six United States companies were represented, mostly through European affiliates or agents. The estimated sales turnover, based on interviews with 25 percent of the exhibitors by the arrangers, was about US\$30 million. The Fifth International Fisheries Trade Fair is tentatively scheduled for Copenhagen in 1965 and 65 percent of the exhibit area already has been booked.

The opening speech by the Danish Minister of Fisheries stressed the importance of such fairs to international trade and cooperation. The spokesman for the Danish Fisheries Council (an organization representing the various Danish fisheries associations) said that Denmark's application to join the Common Market was something which the greater part of the industry believed would be of great advantage provided, of course, that the United Kingdom, one of Denmark's biggest fish customers, also became a member. He hoped that Denmark's fishery exports to the East Bloc countries could be maintained and, preferably, expanded. But, despite Danish exports to 100 countries, he was concerned because export prices were practically the same as in 1960 and did not cover significant increases in costs in 1961 and 1962.

Unless export prices increased, difficulties were foreseen because the fishing industry had done everything possible to bring its costs down through modernization. Participation in international fairs had been successful in promoting Danish fish and fishery products but there was a need for expansion both in domestic and foreign markets, preferably through diversion of a portion of the tax on exported fishery products. (Regional Fisheries Attaché, United States Embassy, Copenhagen, May 8, 1962.)



Dominica

TUNA FISHING SEASON:

Off the island of Dominica (part of the West Indies Leeward Islands), the yellowfin tuna (locally called "albacore") fishing season, which usually lasts from May to July, started unusually early this year. Tuna averaging 70 pounds each began to be caught in December 1961, and by the end of January 1962 almost 100 fish had been landed, an all-time record for that time of year for the Island.



Ecuador

PROPOSED DECREE WOULD RESTRICT FISHING BY TUNA PURSE SEINERS OFF COAST:

A decree proposed by the Ministry of Development would restrict purse seiners from fishing for tuna within 40 miles of the Ecuadorian coast between the Santa Elena Peninsula and Cabo Pasado. This action was proposed after a Government study mission returned from its investigation in Manta of complaints by fishermen that United States vessels were engaged in tuna fishing in Ecuadorian waters. (United States Embassy, Quito, report of May 4, 1962.)



Faroe Islands

BRITISH READY TO DISCUSS FISHING LIMITS WITH DANES:

The British Government has told Denmark that it is ready to discuss with them the question of fishing limits off the Faroe Islands. A British Foreign Office statement said that an aide-memoire setting out the Government's views and indicating its willingness to discuss the question was handed to the Danish Charge d'Affaires in London.

This follows a Danish aide-memoire in February 1962 concerning the future of the Anglo-Danish Agreement of 1959, under which British vessels fish in waters adjacent to the Faroes.

Under the 1959 agreement, the British Government agreed to a six-mile limit off the coast in certain areas. The agreement provides for either government to give a

year's notice of termination at any time after April 27, 1962.

The Faroese local governments have been pressing the Danish Government for some time to apply to British vessels the 12-mile fishery limit which already applies to vessels of other nationalities fishing off the Faroe Islands. (*The Fishing News*, April 27, 1962.)

The Danish Ministry of Foreign Affairs gave notice to the United Kingdom on April 28, 1962, of termination of the 1959 agreement on fishing limits in the Faroes. In accordance with the one year's notice provided for in the agreement, it will end on April 27, 1963.

Fishing limits of 12 miles have been recognized by the United Kingdom in Iceland and Norway.



Fiji Islands

FINAL ARRANGEMENTS FOR PROPOSED TUNA BASE:

The Japanese Diet Member who initiated the plan to establish a joint tuna base in the Fiji Islands left Japan on April 26, 1962, for the Fiji Islands to make final arrangements with the Fijian authorities to carry out his plan. In Japan, preparations for this joint venture are reported to be well under way and the application to establish this joint company was expected to be filed with the Fisheries Agency upon return to Japan of the Diet Member.

Under the present plan, Japan and Great Britain (Fiji Islands are a British possession) will each contribute 50 percent of the investment, or the equivalent of 150 million yen (US\$416,670) each. Of Japan's share of the investment, two Japanese companies are jointly investing a total of 65 million yen (\$180,556), a Japanese trading company is investing 65 million yen (\$180,556), and the South Pacific Ocean Fisheries Cooperative Association 20 million yen (\$55,556). As for investment by the Fijian side, stocks are being offered for public subscription and already 2 or 3 investors reportedly will participate in the venture. (*Suisan Keizai Shim bun*, April 24, 1962.)

* * * * *

Fiji Islands (Contd.):

CONSTRUCTION OF TUNA BASE:

The proposed establishment of a joint Japanese-British tuna base in the Fiji Islands, an enterprise to be managed by the South Pacific Ocean Fisheries Cooperative Association, has progressed to the stage where the base construction at Levuka was scheduled to commence on June 1, 1962. The Japanese Diet member who initiated the plan returned to Japan on May 8 from his fourth trip to the Fiji Islands. He explained the present status and prospects of the joint venture as follows:

1. Purpose of the recent trip was to make arrangements for constructing freezing facilities. The touring party included a Japanese engineer from the firm which is to handle freezer construction. Blueprints for the freezer plant have already been drawn and construction was scheduled to begin on June 1.

2. Initially, a freezer plant with a freezing capacity of 100 metric tons and a storage capacity of 2,000 tons will be built at a cost of about 500 million yen (US\$1.4 million). Construction is expected to take 10 months. Present plans call for increasing the freezing capacity by 50 tons and storage capacity by 1,000 tons next year.

3. Construction of the base was expected to start as soon as the Fijian Government approved the undertaking. Since this enterprise will contribute to the industrial growth of the Fiji Islands, the Fijian Government is showing a very cooperative attitude, having already drafted a law which would place this base in the category of protected industries. Only the provision relating to the method of determining ex-vessel fish prices remains to be included in the law. The director of the development program for the Fiji Islands was in Japan to discuss the method of determining tuna ex-vessel prices, and a general agreement has already been reached on this matter. Before returning to the Fiji Islands, the Fijian director was to study the Japanese housing loan procedures since the Japanese have asked the British bank in the Fiji Islands to extend a 200-million-yen (US\$6.8 million) loan for the construction of houses for the 2,000 Japanese to be assigned to the base.

4. A total of 100 Japanese fishing vessels (each of 99 gross tons) will be assigned to the Fiji Islands tuna base over a period of four years. During the first year, 30 vessels will be sent, of which 25 will be fishing vessels and 5 training vessels. Orders for these vessels have already been placed with a Japanese shipbuilding firm. Each vessel is expected to cost around 46.8 million yen (US\$130,000). Tuna landed by the vessels will be delivered to the local processing plant, where they will be frozen or canned for export to the United States. The processing plant will be jointly established with Japanese and British capital.

5. Approval for entry of Japanese families into the Fiji Islands has been obtained from the Fijian Government. The Fijian Government will grant 8-year residence permits to Japanese residing on the base, instead of 4-year permits as agreed upon originally. (Suisan Keizai Shimbun & Suisan Tsushin, May 16, 1962.)

One of the provisions in the drafted Fijian law reads: "The company which has been licensed will construct at Levuka, Fiji Islands, cold-storage and canning facilities fully capable of processing and handling the catch of the fishing fleet to be composed of at least 30 vessels." The Fisheries Agency reportedly is faced with a dilemma, for the Agency has already taken the position that it will not authorize the construction of canning plants overseas, and the Agency is reported to be reviewing this matter carefully.



France

TUNA INDUSTRY, 1961:

Production of tuna in French waters declined again in 1961, amounting to only 16,600

metric tons as compared with 17,900 in 1960 and 22,500 tons in 1959, well below the needs of the market. In addition, 5,600 tons of yellowfin tuna (including a very small quantity of "Listao") fished by French vessels in African waters were landed in French ports.

The 1960/61 winter African season was a disappointing one for French fishermen. On the one hand they had to go much farther south from Dakar to find the yellowfin tuna and on the other hand the outlets for canned tuna processed in Dakar were much smaller than had been originally expected. Only the technically more modern vessels equipped with freezing units found the season in Africa really profitable. The Senegal cannery plants have a considerable amount of idle capacity and must rely principally on the protected French market where the level of tuna prices is higher than it is in other countries. An estimated 13,000 tons of tuna were reported produced during the calendar year 1961 by French vessels fishing in Africa. Of that amount, 5,600 tons were shipped to France as frozen tuna and the rest was canned in Senegal (4,160 tons of the Senegal canned pack was shipped to France).

The program set up by the French Authorities before the 1961/62 campaign in Africa started called for a total production of 22,000 tons, of which 10,000 tons were to be shipped frozen to France for the French canneries. As the French canneries were running short of tuna at the beginning of April 1962, the French Government took an exceptional decision to allow the import of 6,000 tons of raw tuna, 3,500 tons of which are destined for canneries located in France and 2,500 tons for Dakar canneries for subsequent export after processing to France. (United States Embassy, Paris, report of May 3, 1962.)

Note: See *Commercial Fisheries Review*, April 1962 p. 60, October 1961 p. 50.

* * * * *

FROZEN TUNA IMPORTS AUTHORIZED:

France is reported to be planning on importing 5,500 metric tons of frozen tuna this year and is said to have already issued import licenses for 3,500 metric tons of frozen tuna. Until recently, France has been restricting imports of tuna, except from countries that once were part of her overseas territories, like Senegal. This recent turn of events is attributed to poor fishing by French fishermen, as well as by fishermen in those countries which normally provide tuna for the French market.

France (Contd.):

Japanese tuna export firms have approached France with offers of frozen tuna, but as of mid-May, only one firm is reported to have been successful in concluding an agreement to deliver about 200 metric tons of tuna at \$360 a ton, delivery Nantes. Since tuna fishing in the Atlantic Ocean has not been very good and since many of the Japanese export firms already have commitments to deliver tuna to Italy and Yugoslavia, French firms are not expected to be able to procure, until sometime after summer, the 3,500 tons of frozen tuna authorized for import into France.

The 3,500 tons of tuna to be imported by France is expected to come under the Common Market duty-free tuna import quota of 25,000 metric tons, but details are not available. (Suisan Tsushin, May 15, 1962.)

* * * * *

FISHERY TRENDS, FIRST QUARTER 1962:

Unfavorable weather conditions resulted in a serious drop in French fishery production during the first quarter of 1962. Mackerel and tuna landings were particularly light and the French canners' association is pressing the Government for an exceptional import quota for raw tuna so that a reasonable packing level can be maintained. The Government has given its agreement in principle for such a quota, but hopes to work out a barter arrangement, perhaps with the Japanese, so that French salted cod can be exchanged for the imported raw tuna. (United States Embassy, Paris, May 3, 1962.)

**German Federal Republic**FISHING TRAWLERS RECRUITING MEN IN IRELAND:

Early in May 1962 advertisements appeared in Irish newspapers seeking men willing to join the crews of West German fishing trawlers.

On May 17, in Cork City, the agent of Nordsee, a German deep-sea trawling firm of Bremerhaven and Cuxhaven, interviewed men who were willing to train for work aboard the vessel. He stated that the firm needed from 50 to 60 men from Ireland to supplement the German fishing fleet which is experiencing a shortage of manpower.

The men will be trained as deck hands and they will be paid in accordance with the German collective wage agreement now in effect for crews of German deep-sea fishing vessels--the basic wage is said to be 255 deutschemark (US\$63.83) per month. In addition, the men will receive a share of the returns from the catch. The trawlers are used also as factory-ships for processing salt fish. They usually have a crew of 31 men.

Interview of applicants was expected to take place also at Waterford, Dublin, and Donegal, Ireland. (United States Consulate, Cork, May 8, 1962.)

* * * * *

PLASTIC CONTAINERS FOR UNLOADING FISH AT DOCKSIDE:

More than 2 years of experience has now been accumulated on the plastic fish containers used to unload fish in Bremerhaven (West Germany) fish market. During that time, it is estimated that each container, each day, has been dropped 100 times from 20 feet beside being manhandled round the market and back on the vessel. Despite this, the 600 containers which formed the initial order are still in good condition.



Fig. 1 - Plastic fish baskets or tubs are hauled on deck from the hold at a rate of 10 feet per second.

The containers will hold 150-170 pounds of fish. They are tub shaped, and have a pair of colored plastic handles. This offers a number of advantages, since they serve both as a basket for unloading and a container on the

German Federal Republic (Contd.):

market floor. The strength of the handles is such that they will withstand the sudden snatch of the winch when hauling from the fish hold and they do not break or dent when dropped or are generally misused. Furthermore, they are easily cleaned by a jet of cold water, and they do not retain bacteria.



Fig. 2 - Plastic baskets come out of the auction hall in the Bremerhaven market and return to the trawler's deck via a chute.

In practice, further advantages have been found. A normal basket must inevitably increase in weight through water absorption, and this means an additional 5-9 pounds which has to be handled. When the basket is used for weighing, the tare weight must be rechecked to allow for this. The plastic tubs in use at Bremerhaven weigh 10 pounds and they will nest within one another, making transport by hand or truck simple. Tests have shown that strength is unaffected at temperatures of minus 22° F.

The material from which they are "injection-moulded" is a low pressure polythene. The Bremerhaven tub costs about US\$7.00 each. (World Fishing, May 1962.)



Ghana

JAPANESE TUNA VESSELS
DISPATCHED TO GHANA:

A Japanese fishing company is reported to have dispatched to Ghana the 239-ton ves-

sels Kuroshio Maru Nos. 70 and 71 for the purpose of conducting pole-and-line fishing. The firm is reported to be constructing three additional vessels of the same size, which are also scheduled to be based at Ghana. (Shin Suisan Shimbun Sokuho, May 8, 1962.)



Greenland

SHRIMP CANNING AND EXPORTS:

Greenland's production and export of canned tiny shrimp is controlled by the Royal Greenland Trade Department (RGTD), Copenhagen. Distribution in the United States is through a New York City fishery firm. The following information was obtained from RGTD and the President of the New York firm.

Data on Greenland's Pack of Canned Shrimp--Can Sizes, Types of Pack, Etc.			
Item	1/4-Lb. Round	1/2-Lb. Tuna	Flat Glass
Net weight	4-1/4 oz.	7-3/4 oz.	4-1/4 oz.
Drained weight . . .	2-1/2 oz.	4-1/2 oz.	2-3/4 oz.
Pack	Wet	Wet	Wet
Sugar	x	-	x
Salt	x	x	x
Citric Acid	x	x	x
Monosodium glutamate	x	x	-
Peeling	Machine	Machine	Hand
Fill	Throw	Throw	Hand
Label type	Litho,	Paper	Litho, top
Interior enamel	White	Regular	-

The 4-1/4-oz. net weight (1/4-lb. round) cans are now shipped 48 to the fiberboard carton. Formerly they were shipped 100 to a wooden box. The 7-3/4 oz. net weight (1/2-lb. tuna) cans are shipped 24 cans to a fiberboard carton. The 4-1/4-oz. net weight glass containers are shipped 12 to a corrugated carton with individual jars separated by corrugated paper. Four cartons are shipped to a master carton.

The canned shrimp are shipped to Boston and New York City by direct shipment or via Copenhagen, Denmark.

Prices to United States buyers were aimed at establishing retail prices of 33 cents and 43 cents per can for the 4-1/4-oz. and 7-3/4-oz. sizes, respectively.

The raw shrimp used were said to run 200 to 300 per kilo or 91 to 137 per pound. The 1961 pack is sold out; the 1962 canning season as of May 10 had just begun. (Regional Fisheries Attaché, United States Embassy, Copenhagen, May 10, 1962.)



Guatemala

SHRIMP FISHING EXPANDING AT
PACIFIC COAST PORTS:

Shrimp fishing from Guatemala's Pacific Coast ports of San Jose and Champerico increased during the early part of 1962. In October 1961 there were only 10 vessels evenly divided between the two ports. As of early April 1962, however, there were about 25 ves-

Guatemala (Contd.):

sels operating out of each port. Also, there is a freezing plant at each port. Moreover, several of the five companies operating on the Pacific have indicated they plan to put additional boats into use.

During calendar year 1961 Guatemala exported only US\$210,000 worth of shrimp, but it is expected that, with the increased number of boats in operation, total exports of shrimp could well exceed \$2 million in 1962. In addition to the fishing activity on the Pacific Coast, one small company has operated a fishing enterprise out of Guatemala's Gulf Coast port of Matias de Galvez for some time.

During the first four months of this year, fishing activity from the port of San Jose has increased. Although the shrimp industry at San Jose has probably not given employment to more than 175 Guatemalans, it has instilled a great deal more life into that port.

One of the most promising developments in the San Jose area is the experiment of one shrimp firm in bringing its vessels across a sand bar and into the protected Chiquimulilla Canal, where docking facilities have been constructed near the company's freezing plant. If this proves practical, it will be of great benefit to the shrimp industry on the Pacific Coast.

The large amount of fish which has become available as a byproduct of shrimp fishing is having an effect on price of fish in Guatemalan markets. One shrimp company recently advertised fish at a retail price as low as 18 cents a pound whereas formerly such fish would have cost 2 or 3 times as much. The market for fish in Guatemala presently is not very large, but low prices should help develop the market. (United States Embassy, Guatemala, April 13, 1962.)

**Guinea****FISHERY TRENDS:**

The Government of Guinea has established the state company SOGUIPOL to run the state fishing fleet of eight vessels, to purchase the catch from independent fishermen, and to organize distribution and retail sales. The fleet is announced to have a weekly catch ca-

pacity of 400 metric tons which, if completely realized, would reach the target figure of 22,000 tons per year established in the Three Year Plan.

West German experts are operating a fish smoking plant, and a cold-storage plant is under construction for handling 100 tons of fish. The Poles are operating six trawlers and training crews in modern fishing practices. (United States Embassy, Conakry, April 24, 1962.)

**Honduras****SHRIMP LANDINGS DECLINE IN 1961:**

Shrimp landings in Honduras in 1961 totaled only 213,400 pounds. This was less than half of the previous year's catch and far short of the peak 1958 production of 908,600 pounds. But in 1961 a greater amount of shrimp was probably caught than is indicated by the official statistics, since according to Honduran officials the statistical system is inadequate at present.

Nevertheless, there has been a sharp downward trend in shrimp fishing activity in Honduras apparently stemming from certain provisions of the 1959 Fishing Law discouraging to foreign operators. An FAO fisheries advisor recently estimated that Honduran waters off the north coast could support a potential shrimp harvest of 2 or 3 million pounds per year. (United States Embassy, Tegucigalpa, report of May 17, 1962.)

**Iceland****FISHERIES TRENDS, APRIL 1962:**

Trawler Tie-Up: As of early May 1962, two State mediators had offered proposals for settling the nearly two-months old trawler strike. The proposals involved a 13-percent wage increase in fixed wages for seamen as well as an adjustment in their share of the catch. The Seamen's Union was expected to complete a general vote by May 7, but it was considered unlikely that they would accept the proposed terms. The strike began on March 10.

Herring Exports to Norway for Reduction: Very large herring catches off the South Coast

Iceland (Contd.):

early this year resulted in the exportation to Norway of fresh herring for reduction. This unusual arrangement aroused some criticism in Iceland because herring reduction plants on the North Coast remained idle because of lack of fish. High transportation costs to the North Coast plants is the reason advanced by the herring production management.

Frozen Fish Exporters Receive Additional Credits from United States Bank: The First National City Bank of New York has agreed to extend a US\$4 million loan to finance exports of frozen fish of the Freezing Plants Corporation (FPC) and the Federation of Icelandic Cooperatives (Samband). The loan, which was previously for \$1.5 million, is guaranteed in part by the Eximbank and will be made to the National Bank of Iceland, which will re-loan approximately 75 percent of the money to the FPC and 25 percent to Samband. (United States Embassy, Reykjavik, report of May 3, 1962.)

* * * * *

EXPORTS OF FISHERY PRODUCTS, 1960-61:

There was a considerable decrease in exports of frozen fish, cold liver oil, herring oil, whale oil, and ocean perch meal during 1961 from 1960, according to the Statistical

Bureau of Iceland's Statistical Bulletin, January 1962. But exports of salted fish, stockfish, fish on ice, cured and frozen herring, fish meal, and herring meal were considerably higher in 1961.

* * * * *

EXPORTS OF SELECTED FISHERY PRODUCTS, JANUARY-FEBRUARY 1962:

Exports of Iceland's most important commodities for January-February 1962 include several fishery items of interest to the United States fisheries. There was a considerable increase in exports of herring meal and

Selected Icelandic Fishery Exports, January-February 1962

Product	Jan.-Feb. 1962		Jan.-Feb. 1961	
	Metric Tons	Value/ US\$1,000 f.o.b.	Metric Tons	Value/ US\$1,000 f.o.b.
Salt herring	8,844	1,921	2,555	474
Salt fish	2,249	778	3,114	1,074
Stockfish	1,719	1,034	1,913	1,031
Herring on ice	4,306	357	2,303	158
Other fish on ice	7,478	867	5,315	428
Frozen fish fillets	5,829	2,202	6,620	2,364
Shrimp & lobster, frozen	32	71	55	79
Herring, frozen	5,300	652	4,287	496
Herring, oil	7,376	763	3,725	460
Fish meal	1,932	269	10,503	921
Herring meal	13,196	1,899	6,276	571
Ocean perch meal	-	-	1,084	81

1/Value converted from Icelandic kronur at rate of 1 kronur equals 2.32 U. S. cents.

Icelandic Fishery Exports, 1960-61

Product	1961			1960		
	Qty.	Value (f.o.b.)	Qty.	Value (f.o.b.)	Metric Tons	US\$ 1,000
	Metric Tons	1,000 kr.	Qty.	Metric Tons	1,000 kr.	1,000
Salted fish, dried	4,646	88,463	2,176	4,435	66,490	1,742
Salted fish, uncured	29,109	297,328	7,314	22,829	208,931	5,474
Wings, salted	1,324	12,313	303	631	4,346	114
Stockfish	10,874	268,751	6,365	7,434	151,878	3,979
Fish on ice	39,554	194,002	4,772	27,975	107,285	2,811
Frozen fish	44,599	694,012	17,073	64,428	737,805	20,902
Shrimp & lobster, frozen	507	41,663	1,025	484	35,209	922
Roos, frozen	607	5,472	208	721	8,977	235
Canned fish	378	22,336	549	258	15,724	412
Cod-liver oil	5,746	46,094	1,134	10,037	65,515	1,716
Roos, salted	3,082	34,839	857	2,788	28,179	738
Roos for bait, salted	1,348	8,131	200	2,259	11,990	314
Herring, cured	38,738	329,044	8,094	19,025	135,363	3,547
Herring, frozen	14,456	69,695	1,714	7,249	23,335	611
Herring oil	25,000	132,479	3,258	36,225	170,132	4,457
Ocean perch oil	981	4,919	121	2,484	14,490	380
Whale oil	1,540	11,800	200	4,423	24,957	654
Fish meal	28,688	119,105	2,980	19,223	69,219	1,814
Herring meal	36,973	205,581	5,008	23,440	90,682	2,376
Ocean perch meal	3,735	17,008	418	11,777	39,830	1,044
Whale meal	1,493	5,769	142	-	-	-
Whale meat	1,620	11,631	286	1,521	9,892	259

Note: Values converted at rate of 1 kronur equals 2.46 U. S. cents in 1961; and 2.62 U. S. cents in 1960.

Iceland (Contd.):

salt herring as compared with January-February 1961 (see table), according to the National Bank of Iceland's March 1962 Statistical Bulletin. Exports of fish meal were very much lower.

* * * * *

EXPORTS OF FISHERY PRODUCTS,
JANUARY-MARCH 1962:

There was a considerable increase in exports of salted herring, herring oil, and herring meal during the first quarter of 1962 as compared with the same period in 1961, ac-

HERRING SEASON GOOD:

One newspaper described this winter's herring season (October 1961-April 1962) in Iceland with 1.2 million barrels landed as the best since 1947. A far higher amount than usual has been frozen for export--18,000 metric tons, of which the U.S.S.R. bought 5,000 tons, East Germany 2,571 tons, Poland 2,500 tons, Czechoslovakia 1,500 tons, Romania 1,500 tons, and Great Britain 157 tons.

The latest innovation is the shipment of 5,000 tons of herring under chemical preservatives to oil and meal plants in Norway. However, one small Norwegian freighter loaded with herring had to put back into an Icelandic

Icelandic Fishery Exports, January-March 1962 with Comparisons

Product	Jan.-Mar. 1962			Jan.-Mar. 1961		
	Qty.	Value f.o.b.		Qty.	Value f.o.b.	
		Metric Tons	1,000 kr.	US\$ 1,000	Metric Tons	1,000 kr.
Salted fish, dried	934	18,318	425	1,752	33,095	887
Salted fish, uncured	3,664	45,402	1,053	2,477	24,971	654
Wings, salted	158	1,856	43	175	1,718	45
Stockfish	2,881	74,379	1,726	3,232	74,711	1,957
Herring on ice	4,742	16,499	383	2,327	6,869	180
Other fish on ice	11,554	53,159	1,233	8,094	28,305	742
Herring, frozen	9,488	48,026	1,114	5,592	27,959	733
Other frozen fish, whole	788	9,642	224	550	5,669	149
Frozen fish fillets	11,040	183,469	4,257	9,828	152,881	4,005
Shrimp and lobster, frozen	59	5,204	121	92	6,205	183
Roes, frozen	183	3,754	87	65	809	21
Canned fish	54	3,386	78	87	5,762	151
Cod-liver oil	1,121	9,920	230	1,215	9,823	257
Lumpfish roes, salted	54	754	17	22	288	8
Other roes for food, salted	127	1,600	37	629	6,371	167
Herring, salted	13,111	119,203	2,766	6,889	52,210	1,368
Herring oil	13,336	58,844	1,365	3,815	20,323	532
Ocean perch oil	15	59	1	189	1,075	28
Whale oil	388	2,558	59	-	-	-
Fish meal	4,965	30,627	711	12,205	46,351	1,214
Herring meal	14,672	90,930	2,110	7,137	28,358	743
Ocean perch meal	5	23	1	1,084	3,482	91
Wastes of fish, frozen	512	1,426	33	1,783	3,285	86
Liver meal	90	588	14	125	860	17
Lobster and shrimp meal	-	-	-	194	376	10
Whale meal	252	1,310	30	305	1,020	27
Whale meat, frozen	86	601	14	286	1,930	51

Note: Values converted at rate of 1 kronur equals 2.32 U.S. cents in first quarter 1962; and 2.62 U.S. cents in first quarter 1961.

cording to the Statistical Bureau of Iceland's Statistical Bulletin, April 1962. But exports of fish meal and ocean perch meal were considerably lower in the first quarter of 1962.

* * * * *

port because the cargo shifted. Another with the same problem and listing dangerously sent out an S O S. After disembarking the crew, an Icelandic Coast Guard vessel towed the freighter into port. (United States Embassy, Reykjavik, May 17, 1962.)

* * * * *

Iceland (Contd.):

HERRING EXPORTED TO NORWAY FOR REDUCTION:

The Icelandic Government complied with a request from fishing vessel owners to allow sales to Norway of fresh herring for reduction. Only herring caught during May off the southwest coast were allowed to be exported. In order to compensate for a rather lean winter fishing season (groundfish fisheries), which closed about mid-May, many fishing vessels planned participation in the excellent herring fisheries. More herring appeared on the southwest grounds during the winter and spring of 1962 than for many previous years. The reduction plants located in the southwest area were unable to process the large quantity of landed herring, resulting in over-stocking and consequent deterioration of the raw material. In some instances, vessels had to wait up to a week to discharge their catches. Herring caught during spring of the year is normally of low fat content and is unfit for processing other than for reduction.

In order to solve the processing problem, an Icelandic export firm undertook negotiations with Norway. A reduction plant at Kristiansund, Norway, agreed to purchase 5,000 metric tons of herring and was willing to take more, if available, at a price of Norwegian kroner 0.15 (equivalent to Icelandic kronur 0.90) per kilogram (about US\$1.9 a short ton) f.o.b. Faxabay Harbor, Iceland. A Norwegian ship was expected to arrive in Iceland early in May for the first shipment. The Norwegians agreed to a minimum of 9 percent fat content herring. It was stipulated in the export permit that only herring caught during May as well as surplus which the local plants were unable to process could be exported.

The price to the Norwegians was somewhat higher than that paid by the local reduction plants. It was reported, however, that the price difference was offset by export fees and other charges undertaken by the exporter.

While the reduction plants on the southwest coast are of relatively small or medium size and are primarily geared for reduction of fish waste from freezing plants and groundfish unfit for other processing, there are large and efficient herring reduction plants on Iceland's north coast. These plants are normally in operation only during the north coast summer herring season (June-August) and idle the remainder of the year. When this export arrangement with Norway was known, many people wondered why the north coast plants were not being utilized instead. The State Herring Factories (the largest in the country) and other north coast plants announced that based on raw material prices paid by southwest coast plants, the transportation cost to the north coast was too high and would result in uneconomical processing.

With new types of fishing gear and sonars, herring fisheries in the Faxabay area have undergone drastic changes during the past 2 or 3 years. (United States Embassy, Reykjavik, May 3, 1962.)

* * * * *

UTILIZATION OF FISHERY LANDINGS^{1/}, JANUARY 1962:

How Utilized	January	
	1962	1961
	. (Metric Tons) .	
<u>Herring</u> ^{2/} for:		
Oil and meal	10,195	2,897
Freezing	2,827	3,537
Salting	1,720	2,383
<u>Groundfish</u> ^{3/} for:		
Fresh on ice landed abroad	6,838	3,149
Freezing and filleting	6,886	6,150
Salting	2,366	2,379
Stockfish	1,161	1,569
Home consumption	811	623
Oil and meal	104	163
Total production	32,908	22,850

^{1/} Does not include shellfish (lobster and shrimp).
^{2/} Whole fish.
^{3/} Drawn fish.

○○○○○○○

Indonesia

JAPANESE NEGOTIATIONS TO ESTABLISH TUNA BASE CONTINUE:

The Wakayama Prefectural Fisheries Cooperative and a Japanese steel import-export firm are continuing to negotiate with the Indonesian Government to establish a tuna fishing base at Djakarta. This negotiation was first begun three years ago.

Base construction plans call for Japan to construct a cold-storage plant, a tuna canning plant, and communication and housing facilities at a total cost of US\$2.5 million (which Indonesia would repay); and assignment of Japanese fishing vessels to the base.

The negotiations, which have dragged on, reportedly face the following difficulties: (1) Equipment needed for the base are to be procured in Japan. However, the Japanese banks cannot guarantee loans for procurement of equipment. (2) The Japanese Finance Ministry and Japanese banks have not expressed firm views concerning extension of loans for this project.

The Indonesian Government has assured the Japanese firms that Indonesia will make installment payments with proceeds from sale of tuna landed at the base. The Japanese firms are negotiating with the Finance Ministry and the Economic Cooperative Fund to secure necessary funds for the construction of the base, but their responses so far have not been favorable. (Shin Suisan Shimbun, April 23; Sankei Shimbun, April 13, 1962.)



Italy

PLANS REPORTED TO RESTRICT FROZEN TUNA IMPORTS:

Reports in some Japanese quarters point out that the Italian Government is planning to curtail frozen tuna imports in an attempt to expand domestic sale of meat products, which are said to be losing their market to canned tuna. This move within the Government is reported to have originated at the time when the European Common Market established frozen tuna import regulations, permitting Italy to import free of duty 25,000 metric tons of tuna, of which Italy has allocated 14,000 tons to imports from Japan.

Japanese exporters believe that the Italian Government's plan is merely conjectural for

Italy (Contd.):

the following reasons: (1) The eating habits of Italians cannot be changed by policy changes of the Government, for the strong demand for canned tuna in Italy is due to the fact that the Italians are even greater fish eaters than the Japanese; (2) Italian canneries are only equipped to pack fish, so a switch to meat packing would involve considerable changes in facilities and canning techniques; and (3) It is unthinkable that Italy is planning to restrict tuna imports to protect its domestic industries since stock farming in that country is so small that the meat packers would have to import meat for packing purposes. (Translation from Japanese periodical Suisan Keizai Shimbun, May 2, 1962.)



Ivory Coast

JAPANESE TUNA VESSELS TO BE PLACED UNDER IVORY COAST REGISTRY:

The Japanese periodical Minato Shimbun of May 10, 1962, states that the joint company to be established in Abidjan, Ivory Coast, by a large Japanese fishing company and an Italian firm will operate with four fishing vessels, all of which will be placed under Ivory Coast registry. The bulk of their catches will be exported to France.



Establishment of the joint company in the Ivory Coast, although on a small scale, permits the Japanese company to circumvent the Common Market tariff restrictions, as well as the present high French import duty

on tuna. Reportedly, the Ivory Coast, which was a French colony for a long time and became independent in 1960, is permitted to export tuna to France without paying the high French tariff on tuna imports, and because of its relationship with France the Ivory Coast is also exempted from the Common Market tariff restrictions.

The Japanese firm and the Italian firm are each investing US\$160,000 in the joint company and 2 of the 4 vessels to be operated by the joint company will be provided by the Japanese firm. Both of the vessels are 39-ton tuna vessels, which do not require tuna fishing licenses in Japan.

Reportedly, the Japanese firm, which operates a large trawler fleet out of Las Palmas, Canary Islands, has formed another joint enterprise with the same Italian firm, and has transferred one of its trawlers to Italian registry. This move was also taken to get around the Common Market tariff restrictions. (Minato Shimbun, May 10, 1962.)



Jamaica

TUNA LANDED IN NOVEMBER-DECEMBER 1961:

During the November-December 1961 season, catches by Jamaica fishermen included albacore and yellowfin tuna ranging from 8 pounds to 50 pounds each. Also, landed at the same time were kingfish from 18 to 67 pounds each, dolphin and other pelagic fish, as well as 50 blue marlin in the Lances Bay area. All these fish were caught in the Caribbean Sea on multiple trolling lines used from outriggers. This fishing method has been taught by the Fisheries Division to fishermen in many parts of the Island of Jamaica, which is part of the Greater Antilles group of islands in the West Indies.

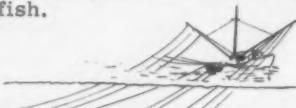
From April 5 to December 16, 1961, a total of 16 trips was made by the 43-foot government exploratory fishing vessel Blue Fin to the various offshore banks in the Caribbean Sea, including Pedro, Walton, Albatross, Henry Holmes, Grappler, Formigas, and New Banks. Until January 1962, the main purpose of the cruises was to train the local government fisheries personnel in the operation and maintenance of the boat and its equipment, to familiarize groups of local fishermen in this type of offshore operation, to test various

Jamaica (Contd.):

types of artificial trolling lures, and to make a general survey of the banks in respect to locating the best areas for trolling tuna, bonito, and other pelagic species, as well as to ascertain good bottom fishing grounds for certain demersal species. Fishing activities consisted mainly of surface trolling during daylight hours and handlining for yellowtail snappers, jacks, and groupers during the night.

From the results obtained during the period it was found that "blackfin" tuna was more in abundance than other tuna species and was almost invariably found along, and close to, the windward or eastern edges of the bank.

It was estimated that "blackfin" tuna constituted roughly 50 to 60 percent of the total troll-caught fish, the other species being dolphin, kingfish, barracuda, bonito, and an occasional yellowfin tuna. The most encouraging results with trolling were obtained on a five-day trip to Formigas Bank in October 1961 when 3,500 pounds of fish were caught. Trolling lures found most successful included 4½-inch to 6-inch white whale bone jigs and white feather jigs of from ¼ ounce to 2 ounces for smaller tuna and 5 ounces for kingfish.



Japan

PACK AND SHIPMENTS OF
CANNED TUNA IN BRINE FOR
EXPORT TO UNITED STATES:

The Japanese tuna packers association in May 1962 announced the production and shipment of canned tuna for export to the United

CANNED TUNA IN BRINE
EXPORT PRICES RAISED:

The Japan Canned Foods Exporters Association held a regular meeting of its Canned Tuna Sales Committee on May 10, 1962, to discuss canned tuna for export to the United States, which was to be offered for sale in May. The meeting was attended by the head of the Tokyo Canned Tuna Sales Company. He stated that for the May sale, a total of 230,000 cases of canned tuna in brine (consisting of 120,000 cases of white meat tuna and 110,000 cases of light meat tuna) would be offered. The prices would be increased by 25 cents per case for white meat tuna and by 10 cents per case for light meat tuna. The new prices would be US\$10.20 per case for white meat tuna and \$7.80 per case for light meat tuna, f.o.b. Japan. Deliveries were scheduled for May and June.

At the meeting, the 18 authorized exporting firms were requested to place their orders for canned tuna by May 15. (Suisan Tsushin, May 11, 1962.)

* * * * *

CANNED TUNA IN BRINE FIFTH
EXPORT SALE TO U. S. EXCEEDS QUOTA:

The Japan Canned Foods Exporters Association invitations for the fifth or "May" sale of canned tuna in brine for export to the United States were closed on the deadline date of May 15, 1962. It was found that the total quantity applied for by the 18 outlet firms had amounted to about 240,000 cases, or about 10,000 cases above the announced quota of 230,000 cases. Prices were up 25 cents a case for white meat or albacore and 10 cents for light meat. (From Japanese periodicals dated May 22 and 23, 1962.)

The tuna department of the Association on May 21 formulated a draft of this year's in-

Japanese Pack, Shipments, and Stocks of Canned Tuna for Export to U. S.				
	Brought Forward from FY 1961 (April 1, 1961)	Fiscal Year 1961 Quantity		On Hand at End of FY 1961 (March 31, 1962)
		Packed	Shipped	
White meat	294,274	1,337,980	1,539,319	92,935
Light meat	305	1/1,040,033	754,657	285,681
Total	294,579	2/2,378,013	2,293,976	378,616

1/Yellowfin used for 165,144 cases.

2/Includes 72,549 cases for countries other than U. S.

States in fiscal year 1961 (April 1961-March 1962), according to a translation from the Japanese periodical Suisan Tsushin, May 22, 1962.

* * * * *

tertrading firm agreement on the export of canned tuna in brine to the United States. The draft was to be presented for the approval of a directors meeting scheduled for May 25 and an extra general meeting scheduled for June 5. The agreement drafted covers 860,000

Japan (Contd.)

cases and will be effective from about June 18 up to the end of November.

The total export target to the United States for canned tuna in brine had been 2,200,000 cases, but 1,340,000 cases had already been sold by May 1962, hence the 860,000 cases.

The wording of the agreement has not changed materially from the former agreement, except that the export of canned tuna items other than in-brine and the in-oil packs may be exported to the United States if the normal formalities have been complied with.

* * * * *

CANNED TUNA IN BRINE MARKET SURVEY IN MIDWESTERN UNITED STATES:

The Japan Export Trade Promotion Association (JETRO) recently released a report on the marketing of Japanese canned tuna in brine in the United States based on market studies it had conducted in the Midwestern States of the United States. A translation of the report follows.

The purpose of the survey was to determine the possibilities of expanding the market for Japanese tuna packed in brine in the midwestern region of the United States by conducting a market survey in the three large Midwestern cities of Cleveland, Detroit, and Milwaukee. Specifically, the survey was conducted to collect and evaluate data in relation to:

1. Status and trend of canned tuna market in the three cities.
2. Sales of Japanese canned tuna in brine in the three cities compared with sales of canned tuna packed by other countries.
3. Views of the industry concerning prospects of marketing Japanese canned tuna in brine in the three cities.
4. Composition of canned tuna consumers in Detroit and Milwaukee with particular attention paid to consumer experience with and response to canned tuna in brine.

In making this study, all data related to the economic and marketing conditions in the surveyed area were thoroughly examined and analyzed. A study of the economy of Cleveland, Detroit, and Milwaukee revealed that the three cities had a combined population corresponding to 18 percent of the total population of the five states of Illinois, Indiana, Michigan, Ohio, and Wisconsin, which border the Great Lakes, and a purchasing power per family higher than any other cities in that region. The areas surrounding the three cities and Chicago are the most important commercial centers in the Midwest, and logically suited for the development of a market for Japanese canned tuna.

No accurate information could be obtained on the sales of canned tuna (both domestic and imported products) in the Midwestern States, but the 1961 sales of United States canned tuna in the Midwestern States is estimated to have reached 3.5 to 4 million cases (No. 1/2 48's), or 22-25 percent of the total of 15.6 million cases packed in the United States in 1961. Since most of the domestically-packed canned tuna in the United States is intended for the retail market, it can be assumed that the sales figures for the Midwestern States roughly indicate the extent of the canned tuna retail market in those areas.

In 1961 the United States imported between 2-3 million standard cases of tuna packed in brine from Japan. Of

that, approximately 450,000 cases were sold in the midwestern region, principally in large cities near the Great Lakes where approximately 350,000 cases were sold. Thus, sales of Japanese canned tuna throughout the midwestern United States amount to not more than 4-5 percent of the total United States imports of Japanese canned tuna in brine.

Canned tuna consumption per family per year in Cleveland and Milwaukee is 0.4 case and in Detroit 0.7 case, so Detroit can be considered an important market for canned tuna. In those three Midwestern cities, two United States tuna brands dominate the market, their sales accounting for 75-80 percent of the total canned tuna sales; whereas, sales of Japanese canned tuna are only 3-9 percent of total sales. United States packers of the two leading brands conduct extensive advertising throughout the United States and have established a firm foundation for their products; whereas, advertising of Japanese canned tuna is indeed meager.

A study of the distribution of canned tuna in brine in 24 supermarkets located in the three Midwestern cities revealed a startling fact. That is, Japanese canned tuna was not (fully) displayed on the shelves of these supermarkets and so it had no impact on consumers. Concerning this, the purchasing officers of 2 or 3 supermarkets in the Cleveland area expressed disappointment at the slow sale of Japanese canned tuna in brine until now and they stated that they would have to drop this item from their list of regularly-stocked items unless sales improve.

In Milwaukee, 62 percent of the consumers knew about tuna packed in brine, and in Detroit the percentage was 52. Most of the consumers first learned about canned tuna in brine by seeing it in a store, which goes to show how important it is to display merchandise on the store shelves, and what is important in this regard is to reach that group of consumers who do not know about tuna packed in brine, for they are the potential buyers of Japanese canned tuna.

To the question, "Don't you think you will like tuna packed in brine?" asked in Detroit, about 26 percent of those who claimed they were not familiar with the product answered, "I think I may get to like it;" 42 percent said, "I don't think I will come to like it;" and 32 percent were not sure. In Milwaukee, 40 percent thought they would come to like it. From this survey, the virgin market in Milwaukee seems to show greater potentiality than that in Detroit.

In Detroit and Milwaukee, the main reasons why the people thought they would like canned tuna in brine are as follows (arranged in order of importance):

1. They dislike oil and fat.
2. They thought tuna packed in brine was preferable from the standpoint of health, dietary, and cholesterol considerations.
3. Tuna packed in brine has a more natural, real flavor.
4. They always discard the oil contained in canned tuna.

Among the group who thought they would not like canned tuna in brine, 45 percent thought canned tuna in brine was too salty, and 25 percent said canned tuna in brine was dry and tasteless.

These opinions should be carefully studied by Japanese packers of canned tuna in brine.

The people connected with industry all agree that there are indications that the demand for canned tuna in brine, as well as oil, on the retail level will continue to grow during the next several years in Cleveland, Detroit, and Milwaukee, although not as rapidly as it did 4 or 5 years ago. In Detroit, where the per family consumption level is already high, canned tuna demand cannot be expected to rapidly increase, but the demand in the Milwaukee and Cleveland markets should rise considerably.

Japan (Contd.):

The question then arises as to how Japanese canned tuna can be made to appeal to the consumers in the three large Midwestern cities. This can be done by acquainting the people with canned tuna in brine, for there are many people in those three cities who do not yet know of the existence of this product. Experience has shown that a good percentage of consumers who have been introduced to canned tuna in brine through sampling programs eventually become regular buyers of this product. Besides, consumers of canned tuna in brine are very fond of this food as was shown by the consumer survey conducted earlier.

Next, the great effectiveness of canned tuna in brine in controlling cholesterol level and overweight problems can be stressed. The survey conducted earlier clearly showed that the people were attracted to canned tuna in brine mainly because they thought it was a more healthful food than tuna canned in oil and that it possessed greater dietary value. Another point which should be stressed is that high quality canned tuna in brine can be purchased for about the same price as chunk-style canned light meat tuna packed in oil.

Consumers in Cleveland and Detroit have a much stronger preference for white meat tuna than actual sales indicate. In Milwaukee, however, more people favor light meat tuna, even in solid packs. Another fact which cannot be overlooked is that there are many housewives who regularly buy chunk-style canned tuna because of the convenient sizes of chunk slices for cooking. In view of this, if the Japanese packers produce and export high quality chunk-style canned tuna to the United States, Japanese exports of canned tuna should increase. Moreover, a more extensive display of chunk-style canned tuna in brine on store shelves will increase the overall competitive power of Japanese canned tuna in brine.

The demand for big lots of canned tuna is steadily rising in the three Midwestern cities covered in this survey. In Cleveland and Milwaukee, the demand is increasing at a higher rate (5 percent) per year than in Detroit, which never has been able to develop a good restaurant trade. The businessmen in the three cities who were interviewed said that the market for canned tuna has not yet reached a "saturation point." However, we should not be complacent about this situation. In the three large Midwestern cities, big lot sales of Japanese canned tuna in brine may not increase as much as the sales through retail outlets, but before trying to increase the percentage of trade with the retail outlets, Japan should make sure that large lot sales in the three Midwestern States are increased and maintained at a 7 percent level per year.

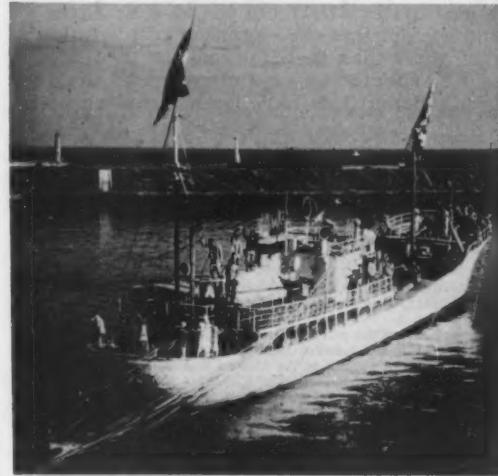
* * * * *

TUNA LANDINGS AT YAIZU, APRIL 1962:

A total of 10,130 metric tons of fish valued at US\$3.3 million was landed at Yaizu, leading Japanese tuna fishing port, during April 1962. This was less than what was landed in the same month last year because of poor skipjack and mackerel fishing. In

Species	Yazu Fishery Landings, January-April 1962 and 1961			
	April		Jan. - April	
	1962	1961	1962	1961
Albacore	1,268	1,215	5,931	5,243
Skipjack	1,000	1,942	1,682	2,111
Other tuna	6,365	7,080	24,584	26,097
Mackerel	845	1,351	4,411	3,130
Other fish	652	584	2,852	2,603
Total	10,130	12,172	39,460	39,184

April 1961 landings totaled 12,172 tons, valued at \$3.4 million. The season for skipjack and mackerel this year was delayed by adverse current conditions. Skipjack landings this April were down about 50 percent and mackerel landings were down 37 percent from last year's. In addition, Indian tuna fishing came to an end earlier than usual and landings of tuna other than skipjack and albacore were somewhat less than last year.



Japanese tuna long-liner leaving Yaizu, principal tuna port, for the Indian Ocean fishing grounds.

Landings at Yaizu for January-April 1962 of 39,460 tons exceeded slightly the previous year's landings. (*Suisan Keizai Shimbun*, May 19, 1962 & other Japanese periodical of May 12, 1962.)

* * * * *

PROSPECTS FOR SKIPJACK AND ALBACORE TUNA FISHING OFF JAPAN:

With the peak of the season for skipjack and albacore tuna off Japan about to begin early in May, generally pessimistic views on skipjack fishing were expressed late in April 1962 because of an over-all decrease in the number of fishing vessels fishing for skipjack this year and conditions of rising temperatures in the path of the Black Current off Japan.

According to the Shizuoka Prefecture Fisheries Experimental Station, while the cold-water mass in the Enshunada Sea is about the same size as normal year, the strength of the Black Current is not as powerful, and so is the reverse current on the edge of the main stream. The rising of temperatures is also somewhat behind time. Landings in the Prefecture during March amounted to some 500 tons, nearly twice as much as in the corresponding month last year, but the majority of catch was assumed to be the fish more or less stationary in inshore waters. To substantiate the delayed arrival of migrating fish, landings decreased to almost half at the beginning of April. The catch trend for skipjack is very similar to that in 1957 when it was only fair.

Japan (Contd.):

The number of vessels fishing skipjack totaled 160 or 170 last year, but it is anticipated to be around 100 this year. Prospects are not bright for the skipjack tuna fishery off Japan this year.

Because of delayed rising temperatures of the Black Current, once albacore tuna schools of regular size arrive, a good fishing area will be formed in inshore waters for a comparatively long period.

Not only large vessels capable of fishing in offshore waters have decreased, but also the delayed completion of the guidance vessel *Fuji Maru*, now under construction, proves to be a great handicap in locating fishing grounds beyond the inshore waters. Observers are inclined to feel that the season's albacore and skipjack catch off Japan will now depend entirely upon the possible development of fishing grounds in offshore waters.

At a meeting of the Japan Fisheries Academic Society, a technician of Tokai University Fisheries Research Institute announced that fishing for albacore further north this year will yield an abundant catch. To substantiate his new theory, he cited the capture by Japanese vessels of two albacore tagged and released by United States biologists in the Eastern Pacific. (*Suisan Keizai Shimbun*, April 27, 1962.)

It has always been an established theory that albacore in the Pacific fishing grounds have the habit of migrating from east to west. At the point where two Japanese tuna vessels retrieved the American-tagged albacore and others, there have been instances where Japanese vessels caught tuna tagged and released from the American side. This fact substantiates the theory that fish migrate from east to west, and moreover, their migration from north to south has also been established clearly. Comparison of body length at the time of release and capture showed a remarkable growth.

Albacore schools have the habit of following a school of smaller fish, small fish are followed by medium fish, and again by large fish. Should a fishing vessel discover a school of small fish, a large catch of albacore is assured with the medium and large fish to follow. On the contrary, if the large fish are found first, fishing will be poor because only the large ones are caught and no other schools of smaller sizes will follow.

In the fishing area some 800-1,600 kilometers off Nojimazaki Cape, Chiba Prefecture, based on the east-west migration theory in the past, the capture of fish schools that migrate north to south cannot be fished easily. There is no doubt about having a good albacore catch if fishing is done further north. The fishing season too may last one month longer than in the past--beginning in May and going through July.

* * * * *

SKIPJACK AND ALBACORE FISHERY TRENDS, MAY 1962:

The late start in skipjack fishing off Japan this season was caused by the weakened strength of the Black Current. The fish were about one month late. But during the first half of May 1962 there were signs that fishing would be normal with better weather. At Yaizu, 368 tons of skipjack were landed early in May, followed by 190 tons a day or two later. Such landings of large quantities were the first for this season.

The fishing grounds as of mid-May were located at 33° N. latitude, 136°-137° E. longitude, off the Shionomisaki Cape, tip of the Kii Peninsula, in the central part of Honshu, and 34° N. latitude, 138° E. longitude, off Omaezaki Point, Shizuoka Prefecture, in the Enshunada Sea. Good fishing was reported on those fishing grounds in mid-May. There were prospects that the good fishing would continue for awhile. Chiefly tuna vessels from Mie Prefecture were fishing in the area, but vessels from other prefectures were also concentrating at those fishing grounds.

Oceanic and fishing conditions May 6 through 10 were reported by the Yaizu Branch of Tokai-ku Fisheries Research Institute as follows:

The water temperature was gradually rising, and the cold water mass in the Kumanonada Sea and a low temperature area southwest off Shionomisaki Cape were beginning to show signs of dwindling. In the Enshunada Sea, a branch of the Black Current moving northward along the Izu Seven Islands was projecting itself rapidly and warm water of 20°-21° C. (68°-69.8° F.) was passing two fishing grounds in the west of the archipelago and moving up to a point south of Omaezaki Point. At 120 miles southeast of the point, a warm water belt of 20°-21° C. was approaching the edge of the cold water mass where a good skipjack fishing area was developing.

Accordingly, at 60-70 miles west of the fishing ground in western waters of the archipelago and around Miyakejima Island of the Izu Seven Islands, good fishing areas for skipjack were developing where daily catches of some 10 metric tons were being made. Also, good fishing of the same degree was going on off Shionomisaki Cape and this fishing ground was moving south southeastward between the cold water mass and the warm water belt. Active fishing was also reported in the sea area around the Bonin Islands where small skipjack of 2.5 to 4.5 pounds each were being caught.

The albacore fishing ground developing around 29° N. latitude, 132° E. longitude was shifting early in May somewhat northwardly and approaching the 30° N. latitude line. Fishing was only fair. In the sea area, 28° 30' N. latitude, 135° 20' E. longitude catches of 2-3 tons a day were reported. Almost no catches were made in the area southeast of Kinansho, south of Shionomisaki Cape.

The Mie Prefecture Fisheries Experimental Station in mid-May 1962 made public its report on skipjack and albacore fishing conditions off Japan.

Skipjack: The principal part of the skipjack school that has arrived on the main stream of the Black Current via southwestern islands is gathering on the main stream of the warm current, moving east northeasterly on the north side of the cold water mass in the Enshunada Sea, from the main stream of the Black Current between Murotomisaki Point and Shinkurose Shoal. The school following is seen in waters off Ashizurimisaki Point, Shikoku, and it is a fairly large size one. The school moving northward around Iwo Jima, south of the Izu Seven Islands, is expected to arrive at fishing areas south of the Izu Peninsula in the near future. The border between the cold-water mass and the main stream of the Black Current in the Enshunada Sea is offering suitable place for skipjack schools to linger. Accordingly, it will be a principal fishing area in the latter part of May and beginning of June. The waters off the Nojimazaki Point will not be active until the beginning of June.

Albacore: A point 100 miles south of Ashizurishima Point, Shikoku, some 70 miles northwest of Kinan Rock has sea conditions suitable for schools to come to the surface. Sporadic good fishing can be expected at various fishing grounds shortly. Also, at a point about 50 miles west of Hachijojima Island similar conditions exist. This school is expected to concentrate off Nojimazaki Cape toward the end of May and in the first part of June where regular fishing is anticipated when it will come to the surface in a wide area." (*Suisan Keizai Shimbun*, May 19 and 23, 1962.)

* * * * *

SUMMER ALBACORE TUNA SEASON STARTS:

Japan's summer albacore tuna season started with landings of more than 100 metric tons in two successive days at Yaizu as of May 2, 1962, according to a translation from a Japanese periodical. But only 42 vessels were operating as of that date: 24 from Shizuoka Prefecture and 18 from Mie Prefecture. There were 90 vessels engaged in the fishery at the same time last year. Under the cir-

Japan (Contd.):

cumstances, landings were smaller than last year. The high price early this May was US\$384 per ton as compared to \$276 a ton a year earlier. Canners were doing the buying, but even for them the price was thought to be too high.

At the peak of the season last year in mid-June, 190 tuna vessels were operating in the albacore fishery. This year, with more larger vessels, the operating vessels are about 60-70 percent of last year's number. A large quantity of summer albacore this year is not expected. (Suisan Keizai Shimbun, May 2, 1962.)

* * * * *

SUMMER ALBACORE TUNA LANDINGS AS OF MID-MAY 1962:

Fishing for summer albacore tuna off Japan was poor during the first half of May 1962. The development of the fishery was being watched with anxiety by canners in the Shimizu district of Japan. The number of fishing vessels operating in the fishery is far less than in the past, and the ocean pattern does not seem to allow the smaller fleet to catch the fish in waters not too far from land.

The landed or ex-vessel price had risen from ¥150 to ¥155 per kilogram (US\$378-390 a short ton), with an expected probable increase to ¥160 a kilogram (\$404 a short ton). The canners fear that the same thing might occur as in 1960 when the production quota for canned albacore or white meat tuna was not attained.

Daily landings of 60-80 metric tons of summer albacore at Yaizu, Japan's leading tuna port, were being maintained with a smaller number of vessels fishing. Unless landings of several hundred tons a day were made in the future, the canners would not be able to fill their production quota. (Suisan Tsushin, May 14, 1962.)

* * * * *

FROZEN TUNA PRICES REPORTED FIRM:

Prices for Japanese-caught Atlantic Ocean tuna are expected to go up (according to the Japanese periodical Suisan Tsushin of May 15, 1962), as a result of expanding markets and decreasing catches. Yellowfin tuna de-

livered to Italy as of early May brought \$360 a metric ton and big-eyed tuna \$335 a metric ton. Both prices are \$10 a ton above those originally agreed upon by Japan and Italy.

Yugoslavia is purchasing Japanese yellowfin tuna for \$370 a metric ton and big-eyed tuna for \$355 a metric ton. Originally, Yugoslavia had contracted to purchase yellowfin for \$360 a metric ton and big-eyed for \$335 a ton.

Because of the shortage of raw tuna, United States tuna packers are not as selective in their tuna purchases as before and are reported to be willing to accept large yellowfin tuna, instead of only small yellowfin as before, Suisan Tsushin states. Japanese export firms feel that the United States packers may start purchasing Atlantic Ocean big-eyed tuna in the future.

The export price of albacore tuna in Japan proper is also reported very firm. One United States packer is said to have made an offer to purchase albacore for \$375 a short ton, f.o.b. Japan. However, Japanese canned tuna packers are reported to be buying up most of the albacore, both clipper-caught fish and pole-caught fish, and are paying \$378 per short ton ex-vessel. For this reason, frozen albacore for export purposes was reported to be difficult to procure as of early May.

* * * * *

ADJUSTMENTS PROPOSED IN FROZEN TUNA EXPORT QUOTAS TO EUROPE AND AFRICA:

The Japan Export Frozen Tuna Producers Association held a directors meeting on May 10, 1962, and voted to accept the proposal to change regulations governing export of frozen tuna and tunalike products to Europe and Africa in fiscal year 1962 (April 1962-March 1963). This proposal was to be presented for adoption to the Association's general meeting on May 25.

Changes proposed are: (a) The regulations to be effective for a period of 9 months beginning July 1962 and ending March 1963. (b) For this nine months period, the tuna export quota to Italy be set at 9,000 metric tons, and this quota be allotted to exporters on the basis of past performances. Also, the number of trips a fishing vessel can make be increased by 0.375 trip per vessel. (Editor's Note: This means that a 1,000-ton capacity vessel can land an additional 375 tons of tuna above

Japan (Contd.):

its present quota, or a 500-ton capacity vessel can land an additional 187.5 tons of tuna.) (c) Regulations limiting tuna landings at European and African ports other than Italian ports to two trips be abolished.

As for transshipping Indian Ocean tuna catches to Italy, this is still prohibited under current tuna export regulations. (Suisan Tsushin, May 11, 1962.)

ATLANTIC TUNA FISHERY TRENDS,
FIRST QUARTER 1962:

Each Japanese tuna vessel in the Atlantic Ocean had been making satisfactory catches up to the middle of March 1962, but since then the catch ratio drastically fell. Taking the case of a large vessel with catchers carried on deck, 12-15 tons a day was its average catch in the first and middle part of March. The bulk of the catch was yellowfin.

The same drastic decrease in yellowfin catch ratio occurred in April last year and all the vessels were compelled to move southward to big-eyed tuna areas and sales were adversely affected. Should poor yellowfin fishing continue from spring through the beginning of summer for two successive years, the desire to fish in the Atlantic will be greatly affected.

Reports coming from the tuna vessels fishing in the South Atlantic indicate that it takes more fishing days to fill the fish holds. This results in an increase in operation costs. To explain the seriousness of the situation, it is said that heretofore it took only one month or 50 days to fill a tuna vessel, but now it takes three months of fishing.

On the bright side, another later report said that 77 Japanese tuna vessels, were fishing in the Atlantic as of May 1962, and the average daily catch for a 500-ton vessel with a catcher carried on deck is said to be 8-10 tons. A noticeable recovery from poor fishing in March was noted as of early May, but this was still less than last year's average daily catch of 10-12 tons per day. About 60-70 percent of the catch was yellowfin and about 10 percent big-eyed. Fishing was reported to have moved northward a little early in May and was concentrated around 10° N. latitude and 20° W. longitude. As last

year poor fishing began in mid-June, there was some speculation as to whether or not this would again occur this June. (Suisan Tsushin, April 17 and May 15, 1962.)

ATLANTIC OCEAN TUNA
FISHING IMPROVES:

Japanese tuna long-line vessels in the Atlantic Ocean as of early May 1962 totaled 77 vessels. Reports indicate that fishing which was poor in March had improved. Catches consisted of 60-70 percent yellowfin and about 10 percent big-eyed tuna. The Japanese vessels are reported to be concentrated in the vicinity of 10° N. latitude and 20° W. longitude. (Suisan Tsushin, May 8, 1962.)

TUNA MOTHERSHIP FLEETS SCHEDULED
TO DEPART FOR FISHING GROUNDS:

A large Japanese fishing company's tuna mothership Koyo Maru (7,500 gross tons) and another firm's tuna mothership Nojima Maru (8,800 gross tons) were scheduled to depart from Japan for the tuna fishing grounds near the Fiji Islands in the South Pacific Ocean. The Koyo Maru was scheduled to depart from Tokyo on May 25, 1962, and is expected to return to Japan in late October, and will be replaced by the firm's second tuna mothership Tenyo Maru No. 3 (3,710 gross tons). Catch target for the Koyo Maru fleet is 11,000 metric tons of fish, including 8,030 tons of tuna, 1,870 tons of spearfish, 990 tons of sharks, and 100 tons of other miscellaneous fish. About 70 vessels, ranging in size from 80-360 tons gross, will make up the Koyo Maru fleet.

Three large refrigerated carrier vessels were expected to be assigned to the Koyo Maru fleet to transport frozen tuna to Japan and the United States. They are the Banshu Maru No. 38 (990 gross tons), which was expected to depart Shimonoseki around May 20; followed by the Banshu Maru No. 35 (990 gross tons) in June; and shortly thereafter by the Banshu Maru No. 36 (990 gross tons). (Suisan Keizai Shimbun, May 15 & 17; Minato Shim bun, May 16, 1962.)

Supply vessels assigned to the Koyo Maru fleet will make a total of 7 trips to haul catches, 3 trips to Japan, and 4 trips to the United States. Shipments to the United States are to be transshipped from Suva. Estimated dates of carrier vessel arrivals in Japan are August 5, August 19, and September 15. Esti-

Japan (Contd.):

mated dates of carrier vessel departures from Suva to the United States are June 15, September 11, September 30, and November 10.

The Nojima Maru fleet (composed of 65 vessels) was scheduled to depart from Kobe on May 17 and will operate in the South Pacific Ocean until late October. Its catch target is 8,000 metric tons of fish, including 3,382 tons of albacore and 2,848 tons of yellowfin tuna. (Minato Shimbun, May 13, 1962.)

* * * * *

CATCHES BY TUNA MOTHERSHIP FLEETS IN THE PACIFIC OCEAN, 1961:

The Japanese Fisheries Agency compiled the 1961 catch by tuna mothership fleets in the Pacific Ocean. Five fleets operated, of which three belonged to one fishing company.

Catches by Japanese Tuna Mothership Fleets in the Pacific Ocean, 1961		
Fleet	No. Catches	Catch
		Metric Tons
Tenyo Maru No. 3	40	6,542
Koyo Maru	35	4,515
Tenyo Maru	49	6,525
Nojima Maru	49	8,268
Jinyo Maru	36	3,083
Total	209	28,933

The fleets operated in Fiji waters with a quota of 22,000 metric tons. The total catch was 28,933 tons, including the quota in lieu of retired tuna vessels. (Suisan Keizai Shimbun, May 9, 1961.)

* * * * *

TUNA MOTHERSHIP REGULATIONS UNDER STUDY:

The Japanese Fisheries Agency early in April was studying regulations governing mothership-type tuna-fishing operations for FY 1962 (April 1962-March 1963) and was expected to announce the new regulations by early May. This year the Fisheries Agency reportedly intends to expand the tuna fishing grounds somewhat westward in view of the nuclear tests by the United States in the South Pacific. The Fisheries Agency is also expected to give consideration as to whether or not to: (1) maintain the catch quota at 22,900 metric tons as in FY 1961 (April 1961-March 1962); (2) discontinue the system which allows tuna mothership companies to augment catch quotas allocated to their mothership fleets by retiring tuna fishing vessels from

the tuna fishery for specified lengths of time and, instead, increase their catch quota by 20 percent, with the increase to be based on actual past production, and (3) discontinue the current method of regulating catch based on allocation of fixed quotas to motherships and, instead, control catch by assigning quotas to catcher vessels assigned to the motherships.

The Fisheries Agency is not likely to approve the tuna industry's request to relax tonnage restrictions placed on tuna catcher vessels assigned to motherships, nor the use of portable vessels for experimental fishing. However, the Agency plans to authorize use of medium (40-100 tons) fishing vessels re-tired from the salmon fishery. (Suisan Keizai Shimbun, April 22, 1962.)

* * * * *

JAPANESE RECOVER AMERICAN-TAGGED ALBACORE TUNA:

An albacore tuna tagged by the Oregon State Fisheries Commission was reported to have been recovered by the Japanese tuna vessel Ryokichi Maru No. 6. The tag was sent to the Tokai University's Fisheries Research Laboratory. According to the Laboratory, the albacore was tagged on September 10, 1961, at $46^{\circ}17' N.$ latitude, $126^{\circ}07' W.$ longitude and recovered with troll gear on March 14, 1962, at $28^{\circ}02' N.$ latitude, $140^{\circ}50' E.$ longitude. The fish weighed about 15 pounds when tagged and released.

A second albacore tag recovery was also reported by the Laboratory. This recovery was made by the Japanese tuna vessel Kyo-shin Maru No. 5 on February 14 around the Bonin Islands (at $28^{\circ}50' N.$ latitude, $146^{\circ} E.$ longitude). The fish when caught was 83 centimeters (32.7 inches) long and weighed 17 kilograms (37 pounds). The albacore was tagged and released off the border of the United States and Canada (at $46^{\circ}17' N.$ latitude, $126^{\circ}07' W.$ longitude) by Oregon biologists. When released on September 10, 1960, it weighed about 14 pounds and measured 68 centimeters (26.8 inches). It took 524 days to swim from the American coast to the point where it was captured. According to the Tokai University Fisheries Research Laboratory, this is the first time a tagged albacore has been recaptured south of $28^{\circ} N.$ latitude. (Suisan Keizai Shimbun, April 20, 1962.)

* * * *

TUNA VESSEL SIZE CLASSIFICATION TO BE ELIMINATED:

According to the Japanese Fisheries Agency, the Fisheries Law is being revised

Japan (Contd.):

to eliminate the present distinction made between medium tuna vessels (40-100 tons) and distant-water tuna vessels (over 100 tons) and to combine the two classes of vessels into one category.

As for medium purse-seine vessels presently licensed by prefectural governors, those that are powered and exceed 40 tons gross are expected to be placed in the same category as powered vessels of over 60 tons gross and will henceforth be licensed by the Minister of Agriculture and Forestry. (Suisan Keizai Shimbun, April 22, 1962.)

* * * * *

**LOANS PROPOSED FOR
CONSTRUCTION OF TUNA VESSELS:**

The Japanese Fisheries Agency reportedly is recommending that the Government-operated Agriculture and Fishery Finance Corporation extend 1.8 billion yen (US\$5 million) of loans to owners of the 81 gill-net vessels displaced from the eastern Hokkaido land-based salmon fishery in 1962 to enable them to construct 99-ton tuna vessels. This amount exceeds the fund authorized by the Finance Corporation for vessel construction, so to provide these loans the Agriculture and Forestry Ministry will have to revise the Finance Public Corporation Law and the Finance Ministry will have to prepare a supplementary budget for submission to the Special Diet session, which convenes in July.

The vessel loans to be provided by the Finance Corporation will be used to finance up to 80 percent of the cost of constructing a total of 50 tuna vessels, each of 99 tons gross. The loans will be payable in 10 years for steel vessels and 7 years for wooden vessels at 7.5 percent interest. (Shin Suisan Shim bun, May 7, 1962.)

* * * * *

**FIRM PLANS TUNA FISHING FROM
AMERICAN-SAMOAN BASE:**

A large Japanese fishing company is reported to have submitted an application to the Fisheries Agency to engage in tuna fishing from the American-Samoan base. Under the plan, 30 fishing vessels belonging to fishing firms (whose vessels were withdrawn from the salmon fishery this year) affiliated with the large fishing firm will be contracted to fish for tuna out of American Samoa.

The catches, expected to total 12,000 metric tons annually, will be sold to the United States cannery on American-Samoan through a Japanese trading firm.

The Fisheries Agency is studying whether it should approve the application since two other Japanese fishing firms, which presently have a working arrangement to deliver tuna to the Samoan cannery, are requesting that their present 12,000-metric-ton Samoan quota be doubled. If both applications are approved, the combined quota for the three companies would come up to 36,000 metric tons. That the Fisheries Agency will approve both applications seems doubtful and speculation is that the Agency may approve a total quota of between 18,000-24,000 tons for allocation to the three companies. (Suisan Tsushin, May 24, 1962.)

* * * * *

**JAPANESE-UNITED STATES
TUNA MEETING PROPOSED**

Japanese Minister of Agriculture and Forestry Kono, who attended the Sixth Annual Meeting of the International Northwest Pacific Fisheries Commission (U. S. S. R. and Japan) in Moscow, stopped at Washington, D. C., in May 1962 on his way back to Japan and is reported to have met with U. S. Secretary of the Interior Udall to discuss the promotion of Japanese tuna exports to the United States, according to reports in Japanese periodicals. Reportedly, Minister Kono has suggested to Secretary Udall that a conference be held between Japan and the United States to discuss the matter in detail. The meeting, if held, is expected to be scheduled for late August or early September 1962.

Minister Kono's objective in seeking to hold a Japan-United States tuna meeting is reportedly to seek the expansion of canned tuna exports to the United States and the lowering of United States import tariffs on canned tuna in brine and in oil.

Some Japanese tuna industry members consider that Minister Kono's proposal to Secretary Udall is a political maneuver designed to pave the way for the establishment of the large tuna base in the Fiji Islands, which is the subject of much discussion in Japan at the present time.

The provisional agreement concluded between the Fijian Government and the Japanese industry members involved in the proposed

Japan (Contd.):

Fijian venture calls for the establishment of a two-line cannery at the joint base to process tuna and other fish landed at that base for export purposes. In early March, the Japanese Fisheries Agency publicly announced that the Agency does not intend to approve the establishment of canneries at overseas bases and went so far as to have the large fishing companies pledge that they will not engage in the manufacture and export of canned tuna in brine at their overseas bases.

Industry members feel that by having made the gesture to the United States to seek the expansion of Japanese canned tuna exports to the United States, Minister Kono will be able to state that an increase in tuna exports to the United States is a definite certainty and thereby be able to mollify industry's opposition against the establishment of the joint tuna base in the Fiji Islands when the Japanese Government officially authorizes construction of that base. (Suisan Keizai Shimbun, May 18; Suisan Tsushin, May 16, March 2, and February 17, 1962.)

* * * * *

FISHERIES AGENCY VIEWS ON USE OF SMALL TUNA VESSELS AT OVERSEAS BASES:

Several Japanese fishing companies have been reported considering using 39-ton tuna vessels, which do not require fishing licenses, at overseas bases. Included in this group is one fishing company which plans on using 39-ton vessels at American Samoa; another which hopes to dispatch two 39-ton vessels to Abidjan, Ivory Coast, where that company plans to establish joint fishing operations with an Italian company; and a third company which plans on operating 39-ton vessels in the Atlantic Ocean.

Responsible officials of the Fisheries Agency have expressed the following views concerning the intentions expressed by the fishing firms to operate 39-ton vessels at overseas bases:

1. The Agency does not have the authority to regulate the operational area of 39-ton tuna vessels. However, exports of tuna come under the trade control ordinance. Depending on where tuna are to be exported and quantities involved, it is possible that the Ministry of Agriculture and Forestry may not approve applications submitted by fishing companies to export tuna caught by 39-ton vessels based at their overseas bases.
2. At the present time, the Agency has no intention of approving exports of tuna caught by 39-ton vessels to areas presently covered under export regulations governing fresh and frozen tuna.
3. In the case of the firm planning to base 39-ton vessels at American Samoa, the Agency cannot stop that company from using the unlicensed vessels as long as total deliveries of tuna to Samoa do not exceed the export quota allotted to the base. However, in the following year, the Agency can reduce the Samoan quota by the amount of tuna landed by the 39-ton vessels in the preceding year. The Agency has unofficially asked the

firm to abandon its plan to use 39-ton vessels, and the firm has complied with the request.

4. Exports of tuna to countries presently not covered under the tuna export regulations will not be prohibited. In this regard, the company's application to base two 39-ton tuna vessels at Abidjan will probably be approved.
5. The company planning to operate 39-ton tuna vessels in the Atlantic Ocean has been instructed to abandon its plan, if its plan includes exporting the catches to such countries as the United States and Italy. (Suisan Tsushin, April 20 and 23, 1962.)

* * * * *

TUNA FEDERATION OPPOSES TUNA VESSEL TONNAGE INCREASE:

The Suisan Tsushin of May 2, 1962, states that the announcement made by the Japanese Fisheries Agency that it was considering a plan to increase by 20,000 gross tons, over a two-year period, the authorized vessel tonnage of the Japanese tuna fleet has astounded the Japanese tuna industry. Under this plan, fishermen engaged in the depressed coastal fishery would be issued licenses to operate tuna vessels under 100 tons gross and salmon fishing vessel owners displaced from the salmon fishery this year following curtailment of salmon fishing activities would also be authorized to operate tuna vessels under 100 tons gross. (Editor's Note: A total of 121 vessels were displaced from the salmon fishery.)

The Fisheries Agency's plan is strongly opposed by the National Federation of Tuna Fisheries Cooperative Associations, which maintains that the tuna fishery cannot accommodate an additional 20,000 tons of new tuna vessels in view of limited tuna resources and world tuna market conditions. The Federation points to the danger to tuna resources by citing the following facts: (1) catch rates in all principal fishing grounds have declined to between 65-80 percent of the catch taken 5 years ago; (2) each trip now takes 5-10 days longer than before; and (3) fish sizes are becoming smaller and smaller.

The Agency claims that the Federation's argument does not necessarily indicate a threat to tuna resources and points out the established theory that: (1) catch rate in a new fishing ground fished by long line is initially very high but declines sharply within a few years and subsequently levels off; (2) trip length and fish size are affected by changes in catch rate.

Sufficient data on tuna resources are lacking to pursue a discussion on tuna resources, states the Suisan Tsushin, and the Agency's attempt to push through its plans to authorize many more vessels to enter the tuna fishery seems somewhat unreasonable inasmuch as the Agency does not possess positive data showing that present tuna resources can support greater harvest. Until now, the tuna fishing industry had operated on a profitable basis and expanded by developing new fishing grounds. Should there come a day when new tuna fishing grounds cannot be developed, the fishermen will have to fish in existing grounds where catch rates are lower and it would be highly doubtful whether they can maintain a steady catch, particularly if more fishing vessels begin to fish the same waters.

Concerning world tuna market conditions on which the Agency and the Federation also disagree, the Fisheries Agency believes that the United States, where tuna consumption is annually increasing, will begin to rely more and more on tuna imports from Japan to supplement the tuna shortage existing in that country. The Agency also claims that possibilities exist to expand tuna exports to Czechoslovakia, France, Yugoslavia, and other European countries, and that domestic consumption of fish sausage is continually increasing.

The Federation argues that the United States and European countries are expanding their tuna fishery, and in Europe the Common Market has established an annual import quota of 25,000 metric tons for member nations in order to restrict tuna imports. Concerning domestic consumption of fish sausage, the Federation claims that the increase heretofore witnessed in Japan cannot be expected to continue, and that the world demand for tuna can be adequately supplied by expanding tuna bases abroad and increasing transhipments.

Japan (Contd.):

The views expressed by the Federation appear reasonable and seem to reflect widely the views shared by the tuna industry, reports the Suisan Tsushin. However, it cannot be denied that currently a world-wide shortage of tuna exists and tuna prices are abnormally high, and there does not appear to be a ready solution to this problem. (Suisan Tsushin, May 2, 1962.)

* * * * *

**YEAR-ROUND TUNA FISHING LICENSES
GRANTED TO FORMER
SALMON FISHING VESSELS:**

The Japanese Fisheries Agency has decided to grant year-round tuna fishing licenses to the 50 fishing vessels that were withdrawn from the salmon fishery in 1960. The 50 vessels had previously been allowed to engage in tuna fishing for only nine months of the year, and remained idle for the remaining three months. (Suisan Keizai Shimbun, April 22, 1962.)

* * * * *

**FISHERIES AGENCY CONSIDERING PLANS
TO AUTHORIZE DISPLACED SALMON
VESSELS TO FISH FOR TUNA:**

The Japanese Fisheries Agency reduced the size of the salmon fleet by a total of 121 salmon vessels this year and has, for some time, been studying ways in which these vessels could be compensated and used in some other fishery. Apparently, the Agency intends to assign these displaced salmon vessels to the tuna fishery and is reported to be considering the following methods for doing this:

1. Salmon vessels licensed by the Minister of Agriculture and Forestry (vessels over 30 tons gross) which quit salmon fishing altogether will be granted year-round 95-ton tuna vessel licenses.

2. Salmon vessels licensed by prefectoral governors (5- to 30-ton vessels) which quit salmon fishing altogether will be granted year-round 70-ton tuna vessel licenses.

3. Fishing vessels temporarily withdrawn from the salmon fishery will be granted 6-month 85-ton tuna vessel licenses.

Evidently, the Fisheries Agency does not intend to grant distant-water tuna-vessel (over 100 tons) licenses to the vessels displaced from the salmon fishery.

As of May 1, 1962, 6 salmon vessels announced that they would quit salmon fishing altogether and 4 vessels announced plans of temporarily withdrawing from the salmon fishery. Based on this sample of 10 vessels, it is estimated that an equivalent of 9,500-9,700 tons of tuna vessel licenses will be granted to salmon vessels displaced from the salmon fishery this year. (Suisan Tsushin, May 2, 1962.)

* * * * *

**GOVERNMENT ISSUES REGULATIONS
ON DISPLACED SALMON VESSELS
PLANNING TO FISH TUNA:**

The Japanese Fisheries Agency announced on May 28, 1962, its official policy concerning the granting of tuna fishing licenses to the 122 salmon fishing vessels displaced from the salmon fishery this year. According to the Agency, tuna-fishing licenses will be granted only to those displaced salmon fishing vessels which submit applications to engage in tuna fishing, in which case the regulations shown below will apply:

1. Salmon fishing vessels engaged in the mothership-type salmon fishery and salmon fishing vessels over 30 tons gross engaged in the land-based salmon fishing which plan to quit salmon fishing permanently will be granted year-round under-100-ton tuna vessel licenses. Applications notifying their intentions must be submitted before March 31, 1963.

2. Salmon fishing vessels over ten tons gross but less than 30 tons gross engaged in the land-based salmon fishery which plan to quit salmon fishing permanently will be granted year-round under-70-ton tuna vessel licenses. Applications notifying their intentions must also be submitted by March 31, 1963.

3. Salmon fishing vessels engaged in the mothership-type salmon fishery and in the land-based salmon fishery which do not plan to quit salmon fishing permanently will be granted 6 months 85-ton tuna vessel permits. The permits must be used between the period beginning May 26, 1962, and ending March 31, 1963, and will be effective for a continuous 6-months period from the date of their issuance. (Suisan Tsushin, May 29, 1962.)

* * * * *

Japan (Contd.):

**SALMON FLEET BEGINS FISHING IN
WATERS SOUTH OF 45° N. LATITUDE:**

On April 30, 1962, a total of 702 land-based Japanese salmon fishing vessels (333 gill-net and 369 long-line vessels) left Hokkaido for the northwest Pacific salmon fishing grounds south of 45° N. latitude, according to a translation from the Japanese periodical *Suisan Keizai Shimbun*, May 1, 1962. Authorization from the Japanese Government was issued on April 29 for the fleet to engage in gill-net and long-line salmon fishing. The Japanese Government's decision to authorize salmon fishing in the waters south of 45° N. latitude was based on the fact that those waters lie outside the area regulated by the Japan-Soviet Northwest Pacific Fisheries Convention; thus they are not subject to Treaty restrictions. Also, fishing in the unrestricted area could not be delayed any longer since the salmon had already arrived



Pulling aboard and removing salmon from a gill net aboard a Japanese vessel in the North Pacific.

in that area. The Soviet Government was formally notified of the Japanese decision.

Departure of the Japanese land-based salmon fleets was delayed by 10 days this year due to the deadlocked Japan-Soviet fishery negotiations in Moscow. The Japanese Government has set this year's salmon catch quota for the waters outside the Treaty area at 60,000 metric tons, which is about 20,000 tons less than last year's actual catch. The Government also reduced the salmon gill-net vessels by 20 percent (81 vessels) from last year's 414 vessels, and has issued rigid regulations to ensure compliance with the voluntary catch quota.

* * * * *

**COMPOSITION OF SALMON
MOTHERSHIP FLEET:**

The 11 Japanese salmon mothership fleets authorized by the Fisheries Agency to fish for salmon this year in Area A (waters north of 45° N. latitude) departed Hokkaido on May 15-16, 1962, for the fishing grounds in the Bering Sea and North Pacific Ocean. Fishing for those fleets is scheduled to end August 10.

Japanese Mothership Fleets Authorized for 1962 Salmon Season	
Mothership Fleet	Size
	Gross Tons
Kyoho Maru	7,158
Kizan Maru	8,626
Meisei Maru	8,336
Meivo Maru	7,153
Kashima Maru	7,163
Otsu Maru	8,033
Miyajima Maru	9,598
Shinano Maru	8,907
Chiyo Maru	7,653
Jinno Maru	7,200
Kyokuzan Maru	10,912

Catcher vessels assigned to the 11 motherships this year were reduced by 10 percent from last year's 410 vessels. Also, the mothership fleets were reduced by one from last year's 12 fleets. (*Suisan Keizai Shimbun*, May 16, 1962.)

* * * * *

**SALMON INDUSTRY RESTRICTIONS
ON USE OF GILL NETS
BY MOTHERSHIP FLEETS:**

The Northern Waters Salmon Mothership Council (composed of fishing companies operating salmon motherships) and the National Federation of Salmon Fishing Cooperative Associations or NIKKEIREN (which represent vessel owners of gill-net fishing ves-

Japan (Contd.):

sels assigned to the salmon motherships) have agreed on the following policies concerning this year's mothership-type salmon operations in the North Pacific:

1. Each catcher vessel will carry not more than a total of 330 "tans" (unit of Japanese shackle about 180 feet long) and not more than 40 kilograms (88 pounds) of salt. (Editor's Note: Limit placed upon salt each catcher vessel can carry is apparently to restrict "home packs" of salted fish.)

2. Each vessel will carry not more than 165 "tans" of nets with knot-to-knot mesh size of 60 millimeters (about 2.4 inches) and not less than 165 "tans" of nets with knot-to-knot mesh sizes of 65 millimeters (about 2.6 inches).

3. Extra supplies of gill nets will be carried by the motherships. Transfer of nets from mothership to catcher vessel to replace lost nets will be conducted after approval for such transfer has been granted by the Fisheries Agency inspector aboard the mothership. Transfer of nets from mothership to catcher vessel in exchange for damaged nets will be conducted in the presence of the Fisheries Agency inspector on board the mothership.

4. When catcher vessels enter certain areas where the use of only 264 "tans" of gill net is authorized, the "extra" 66 units of gear carried by catcher vessels must absolutely not be used. (Shin Suisan Shimbun, May 14, 1962.)

* * * * *

SALMON INDUSTRY'S VIEWS OF NORTH PACIFIC FISHERIES CONVENTION:

The Japanese periodical Suisan Keizai Shimbun of May 15, 1962, states that Japan will soon be in a position where it can withdraw from the International Convention for the High Seas Fisheries of the North Pacific Ocean (Japan, Canada, United States), if it wishes. The Japanese salmon industry hopes to formulate its position on this matter before the Japanese Government does, so that the will of the industry will be reflected in the Government's policy. For this reason, the salmon industry plans to form a committee about July this year to thoroughly study the Treaty problems confronting the salmon industry, as well as to consolidate views within the industry.

According to Suisan Keizai Shimbun, an organization called the Japan-U.S.-Canada Fisheries Treaty Study Society was formed in June last year. This Japanese group included fishery scientists and experts in international law from the Fisheries Agency, Foreign Ministry, and industry to study the Tripartite Treaty problems objectively from a scientific point of view. The Society is currently collecting and evaluating

facts relating to the circumstances leading to the conclusion of the Treaty and to the establishment of the abstention line (175° W. longitude), which prohibits the Japanese from fishing east of that line, as well as the attitude of the United States at the time the Treaty was concluded. Based on biological and legal studies related to the abstention line, the report is expected to include a study of the propriety of the provisional abstention line from the standpoint of the Law of the Sea and points which Japan should be aware of in relation to that line. The Society plans to submit its findings and recommendations to the Japanese Government and to the fishing industry by the end of June this year.

The salmon industry plans to carefully study this report in determining its attitude regarding the Convention. Some members of the salmon industry feel that, instead of creating an independent committee to study the Tripartite revision problem, a committee should be formed to study the fishery problems of the Northern Waters (Okhotsk Sea, Bering Sea, and the North Pacific Ocean), and to include within that committee the special Japan-Soviet Fisheries Committee, which was organized to study fisheries problems relating to Japan and the Soviet Union.

Apparently, opinions within the Japanese salmon industry concerning revision of the Japan-U.S.-Canada Fisheries Treaty are divided into two groups: one group is urging a firm attitude, and the other favors adopting a moderate attitude. The National Federation of Salmon Fishing Cooperative Associations (NIKKEIREN), which is composed of owners of gill-net vessels assigned to salmon motherships, advocates a firm stand, claiming that the abstention line is a disgrace upon Japan and must be removed by all means. NIKKEIREN feels that if Japan agrees to renew the present Treaty without any modification, it will exert an extremely adverse effect on negotiations to be held with the Russians, when the Japan-Soviet Fisheries Treaty expires four years hence. On the other hand, another group within the salmon industry supports a moderate stand, maintaining that Japan's insistence on eliminating the abstention line might irritate the United States and Canada and result in those countries imposing severe import restrictions on Japanese canned fish products and frozen tuna. By and large, the opinion within the salmon industry supports abrogation of the present Treaty and re-negotiation of a new treaty.

The Suisan Keizai Shimbun states that the Japanese Government hopes to formulate a provisional policy concerning the Tripartite Convention before the interim meeting of the International North Pacific Fisheries Commission convenes in August this year in Honolulu, taking into due consideration views prevailing within the Japanese salmon industry, the international fishery situation, and fishery resource problems. Should the three countries, Japan, Canada, and the United States, renegotiate a new treaty, the debates will most likely center around the problems of the abstention line, species placed on the abstention list, and admission of the Soviet Union to membership in the new treaty.

* * * * *

FIRM EXPANDING FISH MEAL OPERATIONS OFF ANGOLA:

The Japanese fishing firm which conducted mothership-type fish-meal operations off Angola (for three months beginning in December 1961) is reported planning to expand its fishing operations off Angola. On May 16, 1962, the freezer ship Kaikei Maru (1,156 gross tons) was sent to Angolan waters. In advance of the Kaikei Maru, two druggers (Koshin Maru No. 1 and No. 2, each 120 gross tons) were dispatched to the Atlantic Ocean in early May. The druggers are scheduled to deliver their catches to the Kaikei Maru for freezing and processing.

Japan (Contd.):

The Kaikei Maru is to be replaced by the freezership Seiju Maru No. 3 (1,184 gross tons), which was scheduled to depart for the waters off Angola in mid-July. In addition to these two freezerships, the firm is reported to be planning on dispatching a third freezership, Tosa Maru (2,000 gross tons), to the same waters.

Japanese fish-meal factoryship Renshin Maru.

The same firm as of May was operating two large fish meal factoryships in the eastern Bering Sea--the vessels Renshin Maru (14,094 gross tons) and the Kinyo Maru (9,373 gross tons). At the end of the Bering Sea fishing season in October, one of the two factoryships is scheduled to be sent to the waters off Angola on the west coast of Africa and the other to the waters off Mozambique on the east coast of Africa to conduct fish meal operations. (Suisan Tsushin, May 15, 1962.)

* * * * *

EXPORTS OF PRINCIPAL CANNED FISHERY PRODUCTS, 1961:

Japanese exports of principal canned fishery products in 1961 were substantially lower than in 1960 both in quantity and value.

Product	1961		1960	
	Quantity	Value	Quantity	Value
	1,000 Cases	US\$ 1,000	1,000 Cases	US\$ 1,000
Salmon, trout . . .	1,245	37,094	1,776	57,369
Tuna in oil . . .	1,436	10,205	1,340	8,921
" " brine . . .	2,207	19,181	2,034	16,397
Other tuna . . .	62	370	12	59
Mackerel . . .	938	3,501	497	1,628
Mackerel-pike . . .	405	2,187	1,045	5,786
Sardine . . .	313	2,450	715	5,475
Crab . . .	496	11,856	520	11,659
Oyster . . .	431	2,941	363	2,543
Other fish . . .	1,093	9,249	834	6,387
Total . . .	8,626	99,034	9,136	116,224

Note: Based on Japanese Customs statistics.

Exports of salmon and trout, mackerel-pike, sardines, and crab meat were down in 1961.

* * * * *

EXPORTS OF SELECTED FISHERY PRODUCTS, 1961:

According to statistics compiled by the Finance Ministry, Japanese exports of agricultural and fisheries products during 1961 amounted to US\$482,100,000--a decrease of 0.7 percent from the previous year. The main reason for the decrease was attributed to greatly decreased exports of canned salmon to Great Britain.

Due to the increase in demand in the United States and Europe, prices rose. Frozen tuna exports particularly increased.

Table 1 - Japan's Exports of Selected Fishery Products, 1960-61

Product	1961		1960	
	Metric Tons	US\$ 1,000	Metric Tons	US\$ 1,000
Frozen Fish:				
Tuna . . .	137,962	39,621	132,020	35,347
Broadbill swordfish . . .	9,625	6,650	7,988	5,336
Salmon and trout . . .	1,338	1,360	2,399	2,537
Fish meal . . .	4,850	725	6,277	819
Pearls . . .	61	35,787	54	30,480
	1,000 Cases	US\$ 1,000	1,000 Cases	US\$ 1,000
Canned:				
Salmon and trout . . .	1,260	37,094	1,776	57,369
Tuna . . .	3,701	20,734	3,386	25,377
Mackerel . . .	938	3,501	497	1,628
Mackerel-pike . . .	405	2,187	1,045	5,786
Sardines . . .	313	2,451	815	5,475
Horse mackerel . . .	628	4,284	-	-
Crab meat . . .	496	11,856	520	11,660

While canned salmon exports to Great Britain decreased, canned horse mackerel and mackerel exports increased. But exports of canned sardine and mackerel-pike were less due to a scarcity of fish. Steady demand in the United States caused canned tuna exports to increase somewhat and high export prices on canned crab meat prevented a decrease in the value of those exports. (Suisan Keizai Shimbun, May 9, 1962.)

* * * * *

JAPANESE FIRM SEEKS TO OPERATE TRAWLER IN NORTH ATLANTIC:

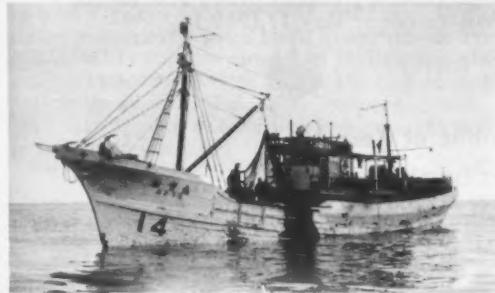
A Japanese fisheries company, affiliated with a large Japanese fishing company, is reported to be seeking the Fisheries Agency's permission to operate a 2,000-ton trawler in the North Atlantic Ocean. The company hopes to export its catches to Denmark, but the Fisheries Agency has shown very little enthusiasm for the plan. The Agency feels that expansion of Japanese fishing operations into the North Atlantic where many European nations are engaged in fishing may create international problems, according to a translation from the Japanese periodical Shin Suisan Shimbun, April 23, 1962.)

* * * * *

Japan (Contd.):

**GOVERNMENT TO PROTEST SEIZURE
OF FISHING VESSELS OFF ALASKA:**

A Japanese press report dated May 7, 1962, states that the Japanese Government is expected to lodge a protest with the United States Government against the seizure by Alaskan State authorities of the two Japanese fishing vessels, Ohtori Maru No. 5 and Shoichi Maru No. 7. The two fishing vessels, belonging to the Banshu Maru No. 31 mothership fleet, were fishing for herring in the Shelikof Strait when seized.



Typical Japanese trawler that operates together with a mothership.

The Japanese Government intends to protest the seizure of the two fishing vessels based on the fact that Japan does not recognize the State of Alaska's claim over certain waters and that the seizure was contrary to the principle of freedom of the high seas. According to the report submitted to the Fisheries Agency by the company which operated the seized fishing vessels, the Banshu Maru No. 31, mothership of the fleet, definitely did not violate United States territorial waters, but the two seized vessels, Ohtori Maru No. 5 and Shoichi Maru No. 7, may have done so.

Validity of the State of Alaska's claim that certain waters are inland waters will not be known until the trial involving the seizure of the Japanese fishing vessels is held. The trial was originally scheduled for early May. The Fisheries Agency expects this matter to be settled by the end of October 1962. If it is established that United States territorial waters were violated, then the company operating the vessels is expected to pay a fine.

The two captains of the seized vessels and the captain of the mothership who were arrested have been released on bail. For their trial, the Japanese company expects to have

a Government-appointed lawyer represent them. (Shin Suisan Shimbun Sokuho, May 2; Suisan Tsushin, May 7, 1962.)

* * * * *

FISHING ACTIVITIES IN BERING SEA:

A trawler fleet, consisting of the mothership Seifu Maru (8,269 gross tons), 28 catcher vessels, and the refrigerated carrier vessel Fuku Maru No. 7, departed for the Bering Sea fishing grounds. This year the Seifu Maru's processing and freezing capacities were increased and the number of catcher vessels assigned to it was increased by 6 vessels to a total of 28 vessels, compared with 22 vessels last year. The 28 catcher vessels, led by the refrigerated carrier, departed from Kushiro, Hokkaido, on May 3, 1962, and expected to rendezvous in the Bering Sea with the mothership, which departed Hakodate, Hokkaido, on May 9. (Suisan Tsushin, May 11, 1962.)



Typical catch aboard a Japanese trawler in the Bering Sea.

The bottomfish factoryship Shikishima Maru (10,100 gross tons) departed Hakodate, Hokkaido, for the Bering Sea on May 14, accompanied by one large and 16 small trawlers. Catch target for this fleet is 25,000 metric tons of fish. (Shin Suisan Shimbun Sokuho, May 9, 1962.)

The shrimp factoryship Einin Maru (7,482 gross tons) which departed Yokosuka on April 19, is now operating in the waters north of the Pribilof Islands. The Einin Maru's production since early May totaled approximately 20,000 cases of canned shrimp. (Shin Suisan Shimbun Sokuho, May 15, 1962.)

The Japanese fishing vessel Ao Maru (365 gross tons), which arrived in the Olyutorski

Japan (Contd.):

area in late April, reports that halibut fishing is good. The Ao Maru is reported to be fishing southeast of Cape Olyutorski along 60° N. latitude, according to a translation from the Japanese periodical Suisan Keizai Chimbun, May 15, 1962.

* * * * *

JAPANESE MINISTER DISCUSSES KELP UTILIZATION WITH PREMIER KHRUSHCHEV:

Japanese Minister of Agriculture and Forestry Kono, who visited Moscow early in May 1962 to break the deadlock at the sixth International Northwest Pacific Fisheries Commission meeting, met Soviet Premier Khrushchev at the Kremlin on May 7. During this meeting, Minister Kono reportedly brought up the question of utilizing kelp found in the waters off Habomae and Shikotan in the Kurile Islands (now under Soviet jurisdiction). Hoping to conclude an agreement which would permit Japan to utilize this marine product, Minister Kono pointed out the fact that the Soviet Union has very little use for kelp, whereas in Japan its use is very extensive.

Both parties are reported to have reached an agreement in principle, but the Soviet leader is said to have expressed concern over the possibility of intelligence activities being conducted on the pretext of harvesting kelp. To this, Minister Kono reportedly proposed the institution of some kind of system, such as a license system, requiring Japanese vessels to purchase licenses to operate in the areas near the above-mentioned islands. Implementation of this agreement will mean that Japanese coastal fishermen, who have always been confronted with the problem of having their vessels seized by the Russians, can operate in safety. (Nippon Suisan Shimbun, May 9, 1962.)

* * * * *

FISHING COMPANIES INTERESTED IN BUILDING FISH SAUSAGE PLANTS ABROAD:

Several large Japanese fishing companies are reported to be planning on establishing fish sausage plants in foreign countries. One of them has been working since 1961 with a plan to establish a fish sausage plant (daily production capacity: 50,000 sausages) at Curacao (an island belonging to the Netherlands) in the Caribbean Sea. In addition to this company, another large fishing company

is said to be contemplating construction of a sausage plant in Brazil. Another large fishing company is currently surveying Guatemala in Central America and Ghana in Africa with a view to constructing fish sausage plants in those countries.

Marketing studies conducted by the companies reveal that many countries in Africa, South America, and Southeast Asia prefer low-priced sausages. Fish-sausage sampling programs were conducted in those areas and the products were well received, indicating that the overseas expansion of the Japanese fish sausage industry should prove successful. (Suisan Tsushin, May 1, 1962.)



Republic of Korea

FIRM OBTAINS LOAN TO BUILD SIX TUNA VESSELS:

The South Korean firm, which presently is operating two tuna vessels out of American Samoa under contract to the large United States tuna packing company which operates a tuna cannery in that Island, has obtained a foreign loan of US\$820,000 to build six 120-ton tuna vessels. This was according to a report in a South Korean publication. Source of this loan has not been disclosed. It is not yet known whether orders for the construction of the six vessels will be placed with Japan. The six tuna vessels are expected to be dispatched to Samoa upon their completion.

The South Korean firm is reported to own an additional 3 distant-water tuna vessels besides the two operating out of Samoa. Completion of the six tuna vessels will increase the company's tuna fleet to a total of 11 vessels.

Reportedly, the United States firm operating the cannery in American Samoa is arranging to have South Korean fishing vessels deliver tuna to its cannery inasmuch as the catch quota of 12,000 short tons placed by the Japanese Government upon the Japanese tuna vessels delivering tuna to Samoa is inadequate to permit maximum use of its Samoan canning facilities. (Suisan Tsushin, May 21, 1962.)

* * * * *

ITALIAN PROPOSAL TO EXPAND KOREA'S FISHING FLEET:

Early in February 1962 the Government of the Republic of Korea announced preliminary

Republic of Korea (Contd.):

agreement to a proposal by private Italian ship-building interests to grant a loan in the amount of US\$100,000,000 for expanding and further developing Korea's fishing fleet. The proposal would add some 120,000 gross tons of modern fishing vessels, part to be constructed in Italian shipyards and part to be constructed in Korean shipyards using materials and equipment to be supplied by the Italian interests. As originally proposed the vessels would be supplied or constructed over a 3-year period and the loan would be payable in 6 to 7 years at 6 percent interest. Korean fishery agencies have been given major responsibility for developing a utilization plan and an implementation program and coordinating these with the fisheries part of the over-all 5-year economic development program previously announced by the military government.

Some part of the order for constructing fishing vessels in Italian shipyards could conceivably be insured under Italy's Martinelli Law. If it were to be so insured, it would then be eligible for financing at a reduced rate of interest. The problem is that the annual insurance ceiling under the Martinelli Law (presently \$240 million of export contracts in any one year) is incapable of handling an export of this magnitude in view of other competing export contracts, and that any insurance coverage under the Martinelli Law for this order would have to be approved by the Italian Government. No indication has been made in Rome of the Italian Government's attitude toward this proposed contract nor whether it would try to secure the Parliamentary approval necessary to raise the insurance ceiling to handle this contract. If the contract is not insured under the Martinelli Law, higher cost and less comprehensive private insurance and ordinary commercial financing at a much higher rate of interest (in excess of 7 percent) would have to be found. What effect this might have on the prospects for the contract is presently unknown. (Reports of April 24, 1962, from Seoul and April 17, 1962, from Rome.)

* * * * *

FISHING COOPERATIVES:

A Fisheries Cooperative Law (Law No. 1013) was promulgated on January 20, 1962. It abolishes the previous system of fishing organizations and authorizes the establish-

ment of fishing cooperatives by local areas and by major methods of fishing, fisheries manufacturer's cooperatives, and a Central Association of Fisheries Cooperatives. Major difference between the new organizations and the fishing guilds are that membership is voluntary and requires individual investment, and a greater scope of functions, including fishery credit activities, may be performed. While providing a somewhat greater degree of self-determination, the cooperative organization will still be under quite complete Government control.



Malagasy Republic

FISHERY AGREEMENT WITH REPUBLIC OF CHINA BEING CONSIDERED:

The Malagasy Government is presently considering a draft fisheries cooperation agreement with the Republic of China. The proposal, suggested during the President of Malagasy's April visit to Taiwan, would replace the cooperation agreement between the two countries made in the third quarter of 1961.

According to the new proposal, which was drafted by the China Fishery Corporation, four 120-ton fishing vessels belonging to the Corporation would operate for training purposes in Malagasy territorial waters. If successful, additional vessels would be sent. The Malagasy Government would provide the fishing base for the fleet. Part of the catch would be sold to local canneries and the balance exported. Any profits would be shared. (United States Embassy, Taipei, report of May 11, 1962.)



Malaya

FROZEN TUNA TRANSSHIPMENTS TO UNITED STATES FROM PENANG BASE:

The Japanese Overseas Fisheries Company, which manages the joint Japanese-Malayan tuna-packing plant at Penang, Malaya, has begun to accept shipments of fresh and frozen tuna for transshipment to the United States. In April 1962, 200 tons of frozen tuna of a total of 320 tons landed at Penang were transshipped to the United States through a Japanese exporting firm, and the remainder shipped to Japan because they were unsuitable for export.

Malaya (Contd.):

Tuna vessels that were expected to return to Penang late in May were the Seishu Maru No. 1 (308 gross tons) and the Hoyo Maru (280 gross tons), both belonging to the Mie (Prefecture) Tuna Cooperative Association. In early August, the Seiju Maru No. 5 (340 gross tons), Seishu Maru No. 2 (409 gross tons), Chosho Maru No. 3 (340 gross tons), Kotoshiro Maru No. 11 (354 gross tons), and the Seishu Maru No. 11 (314 gross tons) are expected to return to Penang, each with 200-300 tons of frozen tuna. In addition, 2 or 3 other vessels were expected to bring fish into Penang in May, and 3 or 4 in June. Besides the mentioned vessels, other fishing vessels known to be fishing for the Penang base are Kompira Maru No. 1 (240 gross tons), Kinei Maru No. 3 (226 gross tons), and Zuiho Maru No. 11 (180 gross tons).

The Malayan plant reportedly is purchasing tuna from the fishing vessels at prices averaging 100-120 yen per kilogram (US\$252-302 per short ton) for unsorted frozen fish and 85 yen per kilogram (\$214 per short ton) for fresh fish. To supply the Penang base with fresh tuna for freezing and transshipment to the United States, the Fuku Maru No. 2 (200 gross tons), which was on its way to the fishing grounds in the Indian Ocean, was expected to bring in its first load of fresh tuna in June. (Shin Suisan Shimbun Sokuho, May 8, 1962.)

Editor's Note: The Overseas Company was authorized by the Fisheries Agency on April 18 to permit landings at Penang of 6,000 short tons of fresh tuna for freezing at the tuna-packing plant's shore facilities in Penang for transshipment to the United States. The Fisheries Agency also authorized on the same day a quota of 4,000 short tons of Indian Ocean frozen tuna for transshipment to the United States from either Penang or Singapore.

* * * * *

EX-VESSEL TUNA PRICES AT PENANG:

The following ex-vessel tuna prices were paid in May 1962 at Penang by the Overseas Fisheries Company, which operates the joint Japanese-Malayan tuna-packing company at Penang (for fish described as second class, i.e., not in prime condition), according to a translation from the Japanese periodical Shin Suisan Shimbun Sokuho, May 31, 1962.

Product	Price	
	Yen/Kg.	US\$/Short Ton
<u>Clipper-caught fish:</u>		
Albacore	130	328
Yellowfin (gilled & gutted):		
20 to 100 lbs.	110	277
100 to 120 lbs.	100	252
Big-eyed fillets	100	252
<u>Iced fish:</u>		
Albacore	106	267
Yellowfin (gilled & gutted):		
20 to 100 lbs.	100	252
Big-eyed (gilled & gutted):		
Over 40 lbs.	70	176



Mauritania

SPINY LOBSTER INDUSTRY:

The spiny lobster season: (a) green lobster (*Palinurus regius*) netted along Rio de Oro coast, June, July, August, and September; (b) red lobster (*Palinurus mauritanicus*), netted from small fishing boats or taken by lobster trap in depths from 30 to 100 meters (98 to 328 feet) from October until June, especially November-January, and March-May.

Mauritania's Exports of Spiny Lobsters, 1959-1961			
Year	Live		Frozen Tails
	Red	Green	
1961	955	228	783
1960	661	311	670
1959	232	347	373

The catch of spiny lobster was 1,650 metric tons in 1959, 3,100 tons in 1960, and 3,500 tons in 1961. There is no shrimp fishing in Mauritania. (United States Embassy, Dakar, May 2, 1962.)



Mexico

SHRIMP LANDINGS, 1961:

The 1961 shrimp landings (heads-on or live-weight basis) in Mexico were probably about 74,000 metric tons—an increase of about 9 percent over 1960 landings. This makes four record years in a row for Mexican shrimp landings. As

Mexican Shrimp Landings by Areas, 1958-61				
Area	1961	1960	1959	1958
. . . (Metric Tons, heads-on weight). .				
West Coast	50,836.5	50,614.6	44,233.8	36,197.2
East Coast	14,878.2	17,372.0	16,803.3	16,073.3
Total	65,714.7	67,986.6	61,037.1	52,270.5
Percentage landed on West Coast	77.4	74.4	72.5	69.2
/Eleven months January-November. Preliminary data subject to revision.				

Mexico (Contd.):

in the previous three years, the latest increase also came from Mexico's west coast. The east coast landings have remained relatively stable since 1958 whereas those from the west coast have risen from 36,000 metric tons in 1958 to about an estimated 57,000 tons in 1961. At least three-fourths of Mexico's shrimp landings in 1961 were on the west coast. Shrimp probably accounted for about 40 percent of the 1961 total landings (live-weight basis) of edible fishery products.

Sinaloa in 1961 was the leading shrimp-producing State in Mexico, followed by Sonora, and Campeche. In 1960 Campeche outranked Sonora. (United States Embassy, Mexico, April 24, 1962.)



Morocco

FISHERY TRENDS, FIRST QUARTER 1962:

Fishery developments in Morocco during the first quarter of 1962 include the following:

1. Announcement by the Minister of Finance and National Economy of the Government's intent to build a plant to manufacture fish flour for human consumption with a capacity capable of producing 700 tons in the first year.
2. The sales agency for Moroccan canned sardines (UCIC) planned to send two persons to the United States in May to explore the possibilities of increasing sales in the United States market.

3. The Government has informed the sardine canners association that the Government will allocate the 600,000-case duty-free quota for imports by France. One of the criteria in the allocation will be the degree of "Moroccanization."

Exports of canned fish for the annual season from June 1961 through January 1962 were 1.87 million cases, the highest figure on record. Sardines accounted for 1.46 million cases, slightly below the previous year's 1.53 million cases, the highest year ever recorded. Tuna at 159,000 cases and "other fish" (chiefly mackerel) at 249,000 cases both hit new highs over a ten-year period.

The franc zone took 47 percent of the total exports--a drop from the monthly average established earlier in the year. This indicated that the free-quota limit for French imports had almost been reached (557,000 cases had been shipped out of the 600,000 quota). (United States Embassy, Rabat, report of May 2, 1962.)



Netherlands

FINAL RESULTS OF ANTARCTIC WHALING EXPEDITION:

The management of the Netherlands Whaling Company has released final figures on the catch of the Netherlands whaling expedition which operated in the Antarctic, headed by the whaling factory ship *Willem Barendsz*. The expedition terminated its hunting on April 15, 1962.

Netherlands Whaling Company Operations in Antarctic, 1961/62 and 1960/61 Seasons		
Product	1961/62 Season	1960/61 Season
Whale oil . . .	72,648 barrels (12,155 metric tons)	129,526 barrels (21,588 metric tons)
Sperm oil . . .	17,440 barrels (2,918 metric tons)	10,248 barrels (1,708 metric tons)
Meat meal . . .	1,726 metric tons	3,947 metric tons
Frozen meat . . .	1,582 metric tons	2,692 metric tons
Meat for Japanese refrigerator ships	7,932 metric tons	5,187 metric tons

In 1961 the catch started on December 12, while during the previous season the catch started on November 28, 1960, and ended on April 6, 1961. (United States Consulate, Amsterdam, report of April 18, 1962.)

Note: See Commercial Fisheries Review, August 1961, p. 80.



Nicaragua

SHRIMP INDUSTRY TRENDS, FIRST QUARTER 1962:

The Pacific Coast port of Corinto continued to be the major fishing port during the first quarter of 1962. A large United States fishery firm operating out of that port has been harvesting shrimp at the rate of 200,000 pounds per month. The company's freezing and packing plant, representing an investment of US\$400,000, will soon be completed.

Smaller operations, primarily for shrimp, are being conducted at Puerto Somoza (also on the west coast) and at El Bluff (on the east coast) by two Nicaraguan firms. The El Bluff operation on the east coast is on the upswing as ten shrimp vessels are fishing and more are scheduled to arrive in July.

A company on Corn Island continues to catch and ship substantial quantities of lobsters. (United States Embassy, Managua, April 30, 1962.)

* * * * *

Nicaragua (Contd.):

SHRIMP AND LOBSTER FISHERY
TRENDS ON ATLANTIC COAST:

Shrimp: The Nicaraguan shrimp firm in El Bluff on the Atlantic as of May 1962 continued to operate at considerably less than full plant capacity. The catch has been averaging about 100,000 pounds per month, and while there is no immediate expectation of rapid improvement, company activities appear to be stabilized on a basis that will permit continued operation of the plant.

A managerial shake-up earlier this year prompted by the accumulated complaints of creditors resulted in the ousting of the majority stockholder from his position as general manager. Officers of the Banco Nicarguense are directing company operations. United States fishermen working out of El Bluff report that the present management is doing a more capable job than did the previous one but that it is unwilling, or unable, to spend the sum that would be needed to correct faults of the plant as originally constructed.

The El Bluff firm has almost no working capital and for this reason is now buying shrimp only from bay fishermen for sale in the Nicaraguan market. The preponderant part of the shrimp are caught by United States fishing vessels in coastal waters, and for these the firm acts only as a processor. An exiled Cuban purchases the shrimp from the trawlers, pays the firm to do the processing, and charters a boat to carry the frozen shrimp to New Orleans. The same Cuban operates five lobster boats which fish in the waters around the Corn Islands, but bring the catch to the El Bluff firm for processing. The firm would like to again purchase shrimp on a large scale, but will not be able to do this until such time as more working capital becomes available. No prospects of this are in sight.

As of May 1962 eight shrimp vessels from the United States were working out of El Bluff. Until March, the average catch per boat per month was over 14,000 pounds and the total amount processed monthly by the plant was slightly above 100,000 pounds. The majority of the shrimp caught are in the size groups of 21-25 and 25-30 count. With the temporary disappearance of the white shrimp, production had declined in May, but it was expected to revive again in July or August.

The El Bluff firm would like to attract more United States fishing vessels to El Bluff, but the present set-up would appear to place severe restrictions on the number of vessels that can be handled. Even with only eight vessels working, unnecessarily long delays in port have been reported. The company hopes to be able to lease additional wharf space from the Customs Authorities in El Bluff. Present freezing capacity of 12,000 pounds per day could be increased if conditions warranted it.

Corn Island Spiny Lobster Fishing: A Corn Island firm is exporting each month about 10,000 pounds of frozen spiny lobster tails to New York City via Panama. Earlier difficulties with the Government have largely ended and the company anticipates continued profitable operation. The other Corn Island company, after only two weeks of operation, closed late last year, and there is no expectation that it will reopen soon. As mentioned above, lobster vessels working out of El Bluff and the El Bluff plant also fish off the Corn Islands.

Dried Shrimp: An American is reported to be drying shrimp at Puerto Cabezas for export to the United States. Shrimp are bought from local bay and lagoon fishermen. A similar operation continues at Pearl Lagoon north of Bluefields. (United States Embassy, Managua, report of May 18, 1962.)



Norway

FISH-FREEZING PLANTS SALES, 1961:

Some 90 Norwegian fish-freezing plants now belong to the joint sales organization Norsk Frossenfisk A/L. The products produced by the members are sold under one brand name and are distributed in 25 foreign countries. In 1961, the sales organization sold over 32,000 metric tons of frozen fish, valued at about Kr.110 million (US\$15.4 million). This includes about 25,000 tons of fish fillets as against about 7,000 tons sold by Findus A/S, the other Norwegian sales organization.

For the first four months of 1962 sales of Norsk Frossenfisk were 45 percent ahead of 1961. The Chairman of the Board of Directors of the sales organization observed that, in his opinion, a further expansion of Norway's frozen fish export is not primarily a question of capital. The affiliated freezing plants have a combined annual capacity of some 100,000 tons. Due to the inadequate supply of raw material, less than half of that capacity is utilized. Thus, it should not be necessary to spend a lot of money on new production facilities. The sales organization has a distribution system in all major countries which conceivably could use more Norwegian frozen fish, said the Chairman. (News of Norway, May 31, 1962, of the Norwegian Information Service.)

* * * * *

THREE-NATION FIRM TO TAKE OVER
FISH FREEZING PLANT IN
NORTH NORWAY:

An agreement on establishment of a Norwegian-Swedish-Swiss corporation, to take over and greatly expand operations of the North Norway fish deep-freezing firm A/S findus, was announced in Oslo early in May 1962. The new Findus International S/A, to have its headquarters in Switzerland, has been formed by the Norwegian company A/S Freia--parent company of A/S Findus, the Swedish A/B Maribor in which Freia owns a majority interest, and the world-wide Swiss concern Nestle, with the latter as main stockholder. With a capital stock of Swiss francs 175 million (US\$40.4 million), Findus International will engage in production and sales of all types of frozen foods. It will take over all activities now conducted by A/S Findus in Norway, Sweden, Denmark, Great Britain, and other countries. Transfer of Freia and Maribor-owned shares from A/S Findus to Findus International S/A will require the approval of Norwegian authorities.

The president and managing director of A/S Freia stated at a press conference in Oslo that the Findus fish filleting and freezing plant at Hammerfest will be the pilot plant for greatly expanded operations. The present processing capacity, which runs about 25,000 metric tons a year, will be merely a modest beginning. As soon as possible, efforts will be made to obtain additional supplies of raw material. In an interview with *Arbeiderbladet*, he said that consideration of

Norway (Contd.):

relations between the two European trade areas had not been of decisive importance in evaluating prospects for Findus International. He disclosed that Freia and its Swedish subsidiary, with 20 percent of the capital stock in the new company, will have 2 of the 5 members on the Board of Directors. The various foreign subsidiaries of A/S Findus will retain their present status. And its Hammerfest plant will continue under Norwegian management.

Findus International figures on investing the equivalent of about Kr. 600 million (US\$84 million) to expand facilities for production and distribution of frozen foods. A part of this amount will be allocated to fish processing. If the per capita consumption of fish in Western Europe could be raised to the same level as in Scandinavia, approximately 2.2 pounds a year, he predicted that the Norwegian fishing industry would have a difficult time meeting the demand.

News of the establishment of Findus International was greeted with mixed feelings in North Norway. The Chairman of the Norwegian Fisherman's Association told *Arbeiderbladet* that he read the newspaper reports with considerable concern. In his considered opinion, the plan could lead to monopoly control of fish buying in Finnmark. Rep. Johs. Olesen, who is chairman of the Norwegian Parliament's Fisheries Committee, said that if foreign capital was needed to expand Norway's fishing industry, he would rather that it be obtained through cooperation with Sweden.

A different view was expressed by the director of the District Development Fund. Generally speaking, he opined that in the long run it was not possible to maintain a satisfactory level of economic activity in North Norway without expansion of the fishing industry. And that, he suggested, could best be achieved through a division of labor between several countries. He welcomed hints that Findus International would contract for deliveries from other plants. If small plants could be drawn into the production by supplying block-frozen fish for further processing, this would be of great importance, he said.

The vice chairman of Frionor, by far Norway's largest producer and exporter of frozen fish, said the cooperative sales organization will have to prepare for sharper competition, both in regard to the supply of raw material and sales in foreign markets. With a chain of associated freezing plants along the coast, Frionor is in a fairly good position. The organization has also established a number of foreign subsidiaries. And for distribution of Frionor fish products in the Netherlands, Belgium, and Luxembourg, it has a co-operative arrangement with a large Dutch packing firm. But to meet competition from Findus International, Frionor will need more funds for sales promotion, he declared. (News of Norway, Norwegian Information Service, May 10, 1962.)

* * * * *

PROHIBITION URGED ON FOREIGN FISHERY LANDINGS AND PROCESSING:

A seven-member Norwegian Government appointed committee has urged that present regulations be tightened to prohibit foreign fishing operators from landing fish for sale in Norway, regardless of what type of gear they might use. According to recommendations outlined in the 81-page Committee report, the Government would be authorized to make exceptions if necessary to assure steady employment and sales, provided it would not hurt Norwegian fisheries. Exemptions should be limited to specific fish species, specific districts, specific periods, and specific

uses. Catches from wrecked fishing craft would also be exempted.

Under the recommendations, foreigners would not be permitted to process, package, or reload fish or fish products inside Norway's fishing zone. Six of the committee members would also deny Norwegian firms the right to sign agreements on contract processing for foreign fishing operators. One dissenting member would permit contract processing of herring and mackerel south of Bergen.

In the Committee's opinion, the superior quality of Norwegian fish and fish products should offer good prospects for maintaining exports, despite stiff competition in foreign markets. The main problem is to supply sufficient raw material for the frozen fish industry. Acquisition of more ocean-fishing vessels and development of better transportation facilities should enable Norwegian fishermen to meet the demand. Landing fish from foreign vessels should be permitted only in emergencies, says the Committee. (Norwegian News of Norway, May 24, 1962.)

* * * * *

FIRM TO PRODUCE FISH FLOUR:

Fish protein concentrate or fish flour suitable for human consumption will be produced on a trial basis at a new plant in Tjaerevikken, near Bergen. The process has been developed by scientists at the Norwegian Fishery Directorate's Chemical-Technical Research Institute.

Initially, the fish flour produced will be tested on calves and other sensitive animals. (News of Norway, Norwegian Information Service, May 10, 1962.)

* * * * *

HERRING AND COD FISHERIES TRENDS:

Altogether 38,160 metric tons of cod were landed in this year's Lofoten fishery, as compared with over 41,000 tons in the 1961 season. Estimated first-hand value of the 1962 catch was about Kr. 40 million (US\$5.6 million). Some fishermen finished up with shares ranging from Kr. 10,000-15,000 (\$1,400-2,100), while others had far less to show for their hard work.

The winter herring fishery, off the Norwegian west coast, was also disappointing. Final

Norway (Contd.):

reports on the results show that the total catch was less than 90,000 tons, with a first-hand value of about Kr. 30 million (\$4.2 million). This was not much of an improvement over the 1961 winter herring season which set an all-time low with a total catch of some 74,000 tons, worth about Kr. 24.7 million (\$3.5 million). The 1962 catch was actually the second smallest since 1908. (News of Norway, May 10, 1962.)



Peru

FISH OIL INDUSTRY TRENDS:

The Fisheries Service of the Ministry of Agriculture calculates that there were 114 fish meal plants in Peru at the end of 1961, 101 of which produced crude fish oil as a result of the fish meal reduction process. These plants are of different sizes and degrees of efficiency, and the equipment they use is as varied as the number of plants operating. The large expansion of Peruvian fish oil production noted in 1961 is attributable to the following: increase in the number of reduction plants; enlargement of individual oil plant capacities; and improved machinery installations (largely Swedish) by numerous plants.

Only 10 producers of crude fish oil are prepared to handle refined oil for sale for domestic consumption and export. One of these, which is among the largest companies, does not have its own refining facilities, but has an arrangement with one of the nine existing refineries for converting its crude oil into the refined product. Somewhat at variance with the report from Copenhagen that plant operators are



working on a proposal to pay refiners for refining services and to market the oil themselves, was a statement made by the managing director of a large fish meal firm in Lima about the existing situation. He said many of the Peruvian producers of crude oil depend upon income from their sales of crude oil to the refineries for paying current expenses, including wages. Therefore, the majority of them would not be interested in changing the present system of selling their oil to refiners for one which would subject them to the vagaries of the international market and unduly delay their receipts from crude oil sales. Under the present system, the refiners assume the risks of the market.

The ten refiners in Peru formed an informal fish oil refiners committee in June 1961. There is only a "gentlemen's" or "verbal" agreement among them, no other form of organization. One of the advantages of the informal group is that its members are in a position to achieve savings in freight costs through the pooling of shipments and the chartering of tankers. Freight costs are \$1.6 per metric ton for refined fish oil shipped to European ports in regularly scheduled shipping conference vessels, but the rate is \$10 per ton in chartered tankers carrying 15,000 tons.

Another advantage the refiners' group has is the opportunity given its members to determine and maintain the price of their product. The chairman of the group suggested US\$140 per ton (6.3 cents a pound) as a reasonable price for refined oil, c.i.f. continental European ports. A year ago, the Peruvian price c.i.f. European ports was \$132-\$133 per ton (about 6 cents a pound). Peruvian refiners as of April 1962, agreed among themselves not to sell at less than \$117.50 a ton (5.3 cents a pound) c.i.f. continental ports. At that price no sales were being made in April for future delivery. There appeared to be some concern that the Peruvian fish oil refiners will experience financial losses, since they are obligated to continue their purchases from crude oil producers, and they will continue refining and storing the product. The stocks in storage in April 1962 were said to be less than 10,000 metric tons.

A further sharp increase in Peruvian fish oil production is predicted for 1962 by some, but the chairman of the refiners group doubted that Peru's 1962 production would surpass that of last year. This he attributed to the fact that expansion plans are being held in abeyance for the present because of the existing world-wide fish oil situation and of the Peruvian political situation. There was a tendency to defer major expenditures until after the national elections, scheduled for June 10, 1962.

Peru's exports of fish oil (refined): Official statistics (table 1) show Peru's exports of fish oil in 1960 to have been 35,003 metric tons and 102,306 metric tons in 1961, an increase of 192.3 percent. The export value was 99.2 million soles (\$3.7 million) in 1960 and 290.8 million soles (\$10.9 million) in 1961, an increase of 193.1 percent.

Table 1 - Peru's Exports of Fish Oil (Refined) by Destination, 1960

Destination	Quantity	Value	
		Metric Tons	US\$ 1,000
Belgium	40.0	126.5	4.7
Denmark	7,302.6	18,615.6	605.7
France	392.6	1,239.3	46.3
Germany	10,635.0	30,887.3	1,154.2
Italy	315.3	811.4	30.3
Netherlands	14,918.7	43,848.3	1,638.6
Norway	854.2	2,113.0	79.0
Sweden	544.5	1,521.9	56.9
Total	35,002.9	99,163.3	3,705.7

Note: Values converted at rate of 24.70 soles equal US\$1.

For 1961, data collected by the National Fisheries Society (table 2) show Peru's fish oil exports to have been 98,088 metric tons, just 4,218 metric tons less than the official figure provided by the Statistical Department of the Callao Customhouse.

Peru (Contd.):

Table 2 - Peru's Exports of Fish Oil (Refined) by Destination, 1961

Destination	Qty.
	Metric Tons
Denmark	14,622
Germany	17,687
Netherlands	43,268
Norway	12,435
United States	825
Others	9,251
Total	98,088

There are no Government subsidies or other concessions applicable to the production or exportation of fish oil (or other fishery products), according to a United States Embassy, Lima, April 18, 1962, report.

* * * * *

FISH MEAL AND OIL INDUSTRY TRENDS, FIRST QUARTER 1962:

In February 1962, the Consorcio Pesquero del Peru S.A. (marketing organization for fish meal producers) completed one year of operation. There can be little doubt that this co-operative marketing organization, with 92 member companies representing 93 percent of Peru's fish meal production, is a primary factor in the stability which has characterized the Peruvian fish meal industry since the Consortium began operations in February 1961. The magnitude of its operations is clear when it is noted that Peru's exports of fish meal approach a value of US\$50 million annually.

Peru has retained its rank as primary world producer of fish meal and continues to be accorded a quota equal to 60 percent of the world market by the Fish Meal Exporters' Organization. At the beginning of 1961, total world demand was estimated at one million metric tons, and Peru's quota was set at 600,000 tons. However, the total world demand for that year was closer to 1,250,000 tons and each country's quota was raised accordingly. Since some of the supplying countries could not fill their quotas, the unfilled allotments were divided between South Africa and Peru. By the end of the year, Peru's 1961 quota had risen to 750,000 tons. Official figures for 1961 show exports of 708,366 tons, valued at 1,328.6 million soles (\$49.6 million), compared with 507,042 tons in 1960, valued at 1,056.4 million soles (\$38.7 million). If world demand for 1962 approaches the figure mentioned recently of 1,350,000 tons, Peru's 60 percent quota would exceed 800,000 tons.

Data are not yet available on Peru's production or exports during the first three months of 1962. It is expected, however, that many plants were not able to maintain production during the period, which normally includes the best months for anchoveta (anchovy) because fishing was bad during that period in many places. Intermittent strikes of fishermen, bad weather, and the compulsory closing of most of the plants in the Lima-Callao area for at least a week in February for failure to install deodorizing equipment, no doubt contributed to a production lag which may be difficult to overcome. There was a report in mid-February that the Consortium had refused new orders, since those on hand would take all available supplies. As of April 1962, Peru's fish meal production for 1962 was estimated by the Consortium at one million tons, of which 750,000 tons would be for export.

The very substantial 192.2 percent increase in fish oil exports in 1961 (102,306 tons) compared with 1960 (35,003 tons) was an interesting development of the fisheries industry in recent months. A condition of overproduction has assailed the world market, however, and prices have dropped considerably. Ten Peruvian refiners of fish oil, members of an in-

formal group which buys crude oil and refines it for export, have agreed not to sell at less than \$117.50 (5.3 U.S. cents a pound) c.i.f. continental European ports. During the first quarter of 1962, it was reported that Peruvian refiners were making no sales at that price for future delivery, and there seemed to be concern that the refiners would experience financial losses. They are obligated to continue purchasing the crude oil, a byproduct of the fish meal reduction process in practically every fish meal plant in Peru, and to refine and store it. It was understood that Peruvian fish oil refiners expected to attend an international meeting of producers in Europe at the end of May, perhaps looking to the establishment of some sort of international organization similar to that in the fish-meal industry (the International Association of Fish Meal Manufacturers).

An interesting comment was made by an individual whose work at sea in the fisheries industry of Peru over a period of several years would seem to place him in a position to make a knowledgeable observation about the general situation. He said that, at the present rate of fishing (apparently meaning all types of fish, including anchoveta and tuna), there would be no fish at all in those waters within a few years, unless some form of conservation was instituted. Fishing this year, he said, is not ahead of last year, the tuna now being taken are much smaller than formerly, and fewer birds are being seen now because there is not enough food for them. (United States Embassy, Lima, report of April 30, 1962.)



Philippines

JOINT JAPANESE-PHILIPPINE TUNA ENTERPRISE TO BE FORMED:

A Japanese fishing company, located in the city of Kesennuma in northern Japan, has accepted the offer from a company of the Philippine Islands (a firm engaged in the loans and insurance business) to participate in a joint tuna venture in the Philippines. The president of the Japanese firm went to Manila on April 16, 1962, for preliminary discussions and a representative from the Philippine company was expected in Japan, at which time the agreement between the two companies was expected to be signed.

The joint tuna base reportedly is to be established on Coron Island, located nearby Manila, with a capital of 200 million yen (US\$556,000). The Japanese company will invest 40 percent and the Philippine company 60 percent. The Japanese company plans to invest three tuna vessels, one of 200 tons gross and another of 150 tons gross, and one 85-ton converted tuna vessel which will engage in year-round fishing for tuna, deep-sea bass, and Spanish mackerel in the waters around Manila, Hong Kong, and Singapore.

The Coron Island base, which is now equipped with an ice plant capable of manufacturing 5 tons of ice per day, a 5-ton freezer plant, and a small cannery, is expected to be ex-

Philippines (Contd.):

panded if the joint enterprise proves successful. (Suisan Tsushin, May 10, 1962.)



Poland

MARINE FISHERIES TRENDS:

Landings, 1961: The Polish fishery plan for 1961 provided for a production of 173,268 metric tons of fish. The actual catch came to within 2 percent of that goal, when 169,375 metric tons of fish were caught. The reason for just missing the mark was the poor catches of Baltic cod which were 6,000 metric tons below the planned catch of 47,300 metric tons.

Polish fisheries consist of state, private, and cooperative enterprises.

Table 1 - Poland's Marine Fisheries Landings, 1961	
Organization	Quantity
	Metric Tons
State enterprises	131,842
Cooperative enterprises	19,337
Private enterprises	18,196
Total	169,375

According to Soviet sources, the Polish State fishing enterprises had already fulfilled their portion of the 1961 quota--131,000 metric tons--by December 20, 1961. It may, therefore, be concluded that either the cooperative or private enterprises (or both) failed to attain their 1961 quota.

The average age in Poland is 31 years for state-employed fishermen, 36.4 years for cooperative fishermen, and 40 years for private fishermen. State-employed fishermen averaging only 6.5 years of fishing experience caught more fish than cooperative and private fishermen averaging 10 and 18.4 years of experience, respectively. Govern-

Table 2 - Poland's Marine Fisheries Landings by Species, 1961	
Species	Quantity
	Metric Tons
North Sea herring	78,178
Cod	41,106
Baltic herring	17,622
Mackerel	12,958
Sprats	11,342
Brackish-water fish	2,521
Flatfish	2,410
Redfish	2,378
Eel	298
Salmon	183
Other	379
Total	169,375

ment support in investments, modern equipment, research, and education most likely contributed to the better catch record of the state-employed group.

"Dalmor" Freezer, Stern-Trawler: Poland's large herring catch was due partly to the introduction in 1961 of Dalmor-type stern-trawlers. The Dalmor B-15 class is a fishing vessel of 2,890 gross tons, 85 meters (280 feet) long, 1,339 cubic meters (47,250 cubic feet) hold capacity, and 12.5 knots average speed. It is identical to the Soviet Leskov RRT-400 class vessel. Dalmor-type vessels are built at Polish shipyards in Gdynia on the Baltic Sea. They are designated Dalmor class if delivered to the Polish fleet and Leskov class if delivered to the Soviet fleet. The names Dalmor and Leskov were those of the first vessels of this type launched for each country.

Present plans call for the construction of a total of 35 vessels of this class; 20 will be delivered to the Soviet Union and 15 to Poland. At least 8 (Leskov, Mamin Sibiriak, Myr, Druzhba, Sputnik, and Lunik for U.S.S.R. and Dalmor and Kastor for Poland) were built in 1961. Construction of 9 vessels is scheduled for 1962. These vessels operate in the North and South Atlantic fishing grounds. During one 84-day trip, a Dalmor-type vessel caught 1,050 metric tons, or 12.5 tons per day, of fish; on another trip of 114 days, the catch was 2,160 metric tons, or 18.9 metric tons per day.

"Miedwie" Freezer-Trawler: Vessels of the B-20 class, called Miedwie class after its prototype, have also been constructed at the Gdynia shipyards. The first was launched in August 1961; by spring 1962, ten vessels had been constructed (Miedwie, Mielno, Mamry, Morag, Morskie Oko, Wigry, Wielczno, Sejno, Szczytno, and Gardno). Plans provide for five additional vessels to be completed by 1963. The Miedwie B-20 is about 750 gross tons, 61 meters (202 feet) long, and 10 meters (33 feet) wide. It has a crew of over 30 and a range of 3,000 miles and 45 days. Its hold capacity is 553 cubic meters (19,514 cubic feet); half is used for salted fish at 0° C. (32° F.) and half for frozen fish at -25° C. (-13° F.). The total cargo capacity is 280 metric tons. The B-20 moves at an average speed of 13 knots with a 1,375-hp. engine. Its winch has a traction capacity of 10 tons at a speed of 70 meters (230 feet) per minute. These trawlers are to be used in the North Sea and in Northwestern and South Atlantic herring and mackerel fisheries. Three B-20

Poland (Contd.):

vessels participated in the Georges Bank fishing in the early spring of 1962 (Miedwie, Mielno, and Mamry). All fishing on the B-20 is done to starboard. Part of the catch is frozen in blocks and stored in the freezer hold; the other part is salted and stored in barrels in the refrigerated hold.

Four B-20-1 vessels, a variant of the B-20, were sold to the French fishing industry.

The Poles have also finished the designs for a stern-trawler-class B-23, which will reportedly have twice the freezing capacity of the B-20. Plans for a B-24 class are also being prepared.

Outlook for Fisheries: The plan for 1962 provides for a catch of 182,000 metric tons. Expected production of fish fillets is 4,700 tons (a 45-percent increase over 1961); production of 19,900 tons of fish fillets annually is expected by 1965.

A long-term fishery development plan for the years 1961 to 1980 has been prepared. It provides for a total annual catch of 900,000 metric tons by 1980, and for an increase from 110,300 tons of fish products in 1960 to 530,000 tons in 1980. The export of fish products is planned to increase eight times by 1980.

Over 500 vessels are to be added to the Polish fishing fleet during the 1961-1980 period. Fishing area in the Atlantic by the Poles will be greatly expanded in northwestern, as well as tropical, waters. Considerable scientific and economic research will be necessary. The latter must justify the investments in long-range motherships, freezer trawlers, and factoryships by proving that fishing at such distances is profitable.

It is estimated that planned catches will increase Poland's per capita consumption of fish to 11.5 kilograms (24.2 pounds) by 1980. In 1960 it was only 4.3 kilograms (9.5 pounds), and in 1955 only 2.6 kilograms (5.7 pounds). The production of animal feed from fish will also greatly increase. (Peche Maritime, February 20, 1962; *Zycie Warszawy*, January 30, 1962; Polish Maritime News, February 1962; World Fishing, March 1962; various unpublished sources.)

Note: See *Commercial Fisheries Review*, November 1961 p. 63.



Portugal

CANNED TUNA INDUSTRY:

The Japan Export Trade Promotion Association (JETRO) in May 1962 released a report on the canned tuna industry in Spain and Portugal. A translation of the report on Portugal follows:

Production of canned fish products in Portugal in 1960 totaled 76,244 metric tons, of which 58,305 tons consisted of canned sardine and 9,341 tons canned anchovy, and those two products together comprised 90 percent of the total canned fish production. Canned tuna was the next leading canned fish product with 5,552 tons. Production of canned tuna has increased yearly since 1957 and the 1961 production represents more than a twofold increase over the 1957 production, which totaled 2,249 tons.

In Portugal there are 230 canneries employing about 18,000 workers. Production per worker is approximately 4.2 tons, which is similar to the output per worker in Spain, although the average number of employees per cannery is about double that employed at canneries in Spain. Ten percent of the canneries are located in the Madeira and Azores Islands, but the number of workers employed at those canneries corresponds to only four percent of the total cannery workers in Portugal. Other canneries are concentrated in Matoinhos, Setubal, Portimao, and Olhao, in Portugal proper.

Fifteen percent of Portugal's canned fish are produced by four large canneries and 85 percent are presumably packed by more than 200 other canneries, each of which is thought to produce less than one percent of the total canned output.

The can supply situation in Portugal is about the same as that in Spain, but since Portugal does not manufacture tin plate, it does not have the numerous problems confronting Spain, such as price and quality control, protective policy versus free trade, financial and tariff administration, and government aid for industrial development. Portugal imports 52 percent of its tin plate from France, 19 percent from England, 11 percent from Germany, and 10 percent from the United States. Production of cans is handled either by the canneries themselves or by cannery cooperatives.

Portugal imports a considerable quantity of raw tuna to supplement its domestic tuna supply, of which there is a tremendous shortage. Portugal's fish imports consist mainly of bluefin tuna, most of which are imported from Portugal's overseas possessions, as well as from Tangier (Spanish Morocco) and Morocco, where bluefin tuna are caught in great abundance and prices are low, and no hard money is needed to make payments.

In Portugal, price disputes between fishermen and canneries constitute the basic hindrance to the development of that country's canning industry. Unless the price problem is solved, the cost of the final product will rise since the packers cannot cut their other production costs, and this will place Portugal at a disadvantage in competing with other countries in the world tuna market.

Portugal's exports of canned tuna will face the obstacle of the European Common Market. Already there is increasing apprehension among Portuguese tuna packers that the Common Market will boycott their products. One other serious problem confronts Portugal, and that is the boycott on Portuguese products carried out by the new African nations. However, at the present stage of development, it is difficult to make any prediction as to how this boycott will affect Portugal's canned tuna industry.



Saudi Arabia

FISHERIES POTENTIAL:

The International Bank for Reconstruction and Development sent an Economic Study Mission to Saudi Arabia in 1960.

Saudi Arabia (Contd.):

The Mission's report Approach to the Economic Development of Saudi Arabia reported as follows on the Saudi Arabia fishing industry:

"Seafood can be a much more important item in the diet of the people of Saudi Arabia than it is at present. Most of the fish and other seafood are consumed fresh in the area in which they are caught, usually on the day of catch. Some fish is kept for short periods on ice and some fish is dried for inland sales. The canning and freezing of fish has not yet been developed.

"There is considerable potential for development in the fishing industry in Saudi Arabia. Even though there are several thousand fishermen on both the Red Sea and the Persian Gulf coasts, the industry is still in the early stages of development. Fishing activities are restricted in part by the type of vessel, the gear and equipment being used, but principally by the lack of marketing facilities such as those required for preservation and transport.

"Studies on fish and other seafood in the Red Sea and the Persian Gulf warrant further investigation by an independent expert in the field. It is recommended that the results of these studies be made available to the private sector for further development, and that the Government provide the necessary incentives to get the industry properly established..."

A fishing company in Jidda has an exclusive concession for commercial fishing in Saudi territorial waters of the Red Sea. It is looking for a United States company which is experienced in fishing and processing fishery products to participate in the capital of the company and to undertake its technical management.

The company was organized in 1952 by HRH Prince MIT'AB bin 'Abd al-'Aziz. On January 26, 1952, Prince Mit'ab had obtained from his father, King 'Abd al-'Aziz, the exclusive concession for the fishing, extracting, gathering, processing, and production of all fish and sea life, mother-of-pearl, and other commercially useful shell and shellfish in the territorial waters of the Saudi Arab Kingdom; the right to sell and export these products is included in the concession. This concession was granted for a 40-year period. The company was organized to exploit only the fish in the Red Sea; a small company gathering and exporting sea shells currently is operating independently along the Red Sea coast.

The authorized capital of the company is 12 million riyals (US\$2.87 million) of which about 3.6 million riyals (\$800,000) has been paid in. This capital was supplied as follows: Prince Mit'ab, one million riyals; Prince MISH'AL bin 'Abd al-'Aziz, one million riyals; Prince FAHD bin Saud, one million riyals; former Finance Minister Muhammad Surur SABBAN, 300,000 riyals; and Muhammad BIN LADIN, a businessman, 300,000 riyals. Except for a small operating account, the company's real property and equipment account for all of the paid-in capital. The company apparently negotiated a small loan some years ago, but this has now been paid off and the company is, according to its bankers, debt-free.

In its first year, the company made an arrangement with a Swedish firm by which it purchased fishing and fish-processing equipment that the Colombian Government had decided not to accept, in exchange for a promise by the Swedish firm to help in the installation of this equipment and the technical operation of the company itself. The Swedish company broke its agreement and after the arrival of the equipment the Saudi company was left without the required technical assistance. The equipment was delivered and partially installed in a rambling structure on the company's property on a private quay near the Jidda harbor. The equipment purchased by the company includes machinery for (1) canning operations; (2) fish meal processing; (3) fish oil extraction; (4) ice manufacture; (5) one deep-freeze storage room; (6) three cool-storage rooms; (7) power generation; and (8) repair services (lathe, drills, shop equipment, etc.). In addition, the company has on the premises four small Diesel-powered (40-60 hp.) fishing boats, four powered dories, and one larger 105 hp. lift-net boat. (A 130-ton tuna vessel is laid up for repairs in Suez). It appears that both the plants and the boats which were sold to the company were designed for use in the frigid zone

waters of Sweden. These special technical difficulties, added to those which a new venture of this kind would normally meet, were more than the Saudi company could cope with. The company has never gone into operation on a commercial scale. Most of its equipment has been in "moth balls." The primary task of its employees is to preserve it. The boats are, however, in poor shape.

During the last few years, technical experts from the FAO and various countries, including Japan, Italy, and Yugoslavia, have visited the company's plant, at its request, to study the possibility of re-opening it. So far, nothing has come of these visits.

The company is looking for both financial and technical help. More specifically, it would like to find a United States company which would be sufficiently interested to send an expert to assess the usefulness of the present plant and equipment and analyze the possibilities of establishing a successful fish-processing plant. If the firm decided that the market potential were sufficient and that such problems as shortage of fresh water and skilled manpower could be overcome, the Saudi company hopes that the United States firm would invest in the re-activated company and take over its technical operation. The type and amount of return the American company would receive would presumably be worked out in direct negotiations between the American firm and the Saudi company. The backers of the Saudi company have tied up considerable capital in the venture; they have been discouraged by years of failure. There are signs that they would be receptive to proposals offered by competent negotiators. (United States Embassy, Jidda, reported May 9, 1962.)



South Africa Republic and South-West Africa

PILCHARD-MAASBANKER FISHERY TRENDS, MARCH 1962:

Fishing for pilchard-maasbanker (jack mackerel) off the Cape west coast of the South Africa Republic continued at a steady rate in March while at Walvis Bay in South-West Africa those companies that did not start fishing earlier commenced operations during the month. This earlier start in fishing in South-West Africa resulted in the overall catch being higher than in the same months last season.

Production of fish meal was running at a higher level than it was last year and this enabled minor additional quantities to be marketed. The price was stiffening as demand was in excess of available supplies.

The price for fish oil remained unchanged at the depressed level of the early months in 1962, but the industry's total production is nevertheless fully committed. Canned fish production was steady against a somewhat decreased demand with prices in general being maintained.

Following increases earlier in the year, prices of spiny lobster in the South Africa

South Africa Republic and
South-West Africa (Contd.):

Republic were unchanged in March. The perennial heavy demand remains and shipments of frozen tails to the United States continue to be made at the normal rate which is designed to spread delivery over the whole year. (The Standard Bank Review, May 1962.)

* * * * *

FISH MEAL AND OIL INDUSTRY,
1960/61 SEASON:

A further substantial increase in South and South-West Africa's shoal fish catch was reported in the Seventeenth Annual Report (covering the period October 1, 1960, to September 30, 1961) of the Fisheries Development Corporation of South Africa Ltd. The Report was presented to the annual general meeting of the Corporation held in Cape Town on March 7, 1962.

The upward trend in catch of the pelagic species forming the raw material of the fish meal and oil and canning industries, as reported over the past three years, was continued at an increased pace during the period under review, which reflected record returns in respect of both the South African and South-West African inshore fisheries.

ceived 85 percent of its raw fish from waters north of Dassen Island as compared with only 22 percent the previous year.

The excellent quality of the pilchards was reflected in the unusually high yield of oil achieved by the reduction plants. In two factories the exceptional figure of 33 gallons of oil per ton of fish processed was maintained for a short period in mid-season. But perhaps more striking effect is the fact that the 434,138 tons of pilchards delivered to South African factories January-September 1961 were estimated to consist of a lesser number of fish than the 345,136 tons of pilchards delivered over the equivalent period in 1960. Quite apart from its economic value, the merit of this development from a conservation angle needs no explanation.

It should be recorded, lest a wrong impression be unwittingly created, that the reduction factories receiving their fish receipts from "south fish," or shoals in the False Bay area, once again enjoyed a highly successful season, though the oil yield from fish of that stock was decidedly lower than that from the catches north of Dassen Island.

In South-West Africa the quota for shoal fish was established at 375,000 short tons divided equally among the six factories oper-

South and South-West Africa's Reduction Plants: Receipts of Raw Fish and Production of Fish Meal and Oil, Fiscal Year 1960/61 and 1959/60

	Raw Fish ¹		Meal Production		Oil Production	
	1960/61	1959/60	1960/61	1959/60	1960/61	1959/60
South Africa	557,075	425,143	123,488	93,620	41,158	25,302
South-West Africa	380,469	306,096	78,138	55,440	17,768	14,811
Total	937,544	731,239	201,626	149,060	58,926	40,113

¹/Includes pilchards, maasbanker, and mackerel.

Note: Fiscal Year—October 1-September 30.

Two features, in particular, dominated the South African 1960/61 season, the first being the return of vast shoals of pilchards to the waters adjacent to the main concentration of factories on the St. Helena Bay coast, the second being the very high quality of the pilchards landed.

The proximity of the fish to the factories had the twofold effect of reducing the cost of catching and making possible the expansion of canning activity in the South African industry, which packed the equivalent of 994,467 cases (48 one-pound tall cans) during January-September 1961 as compared with 720,610 cases for the same period of 1960. One large factory in the area in question in 1961 re-

ating at Walvis Bay. The fish were readily accessible and in good condition, allowing processors once again to undertake a heavy canning program yielding the equivalent of 3,904,264 cases (48 one-pound tall cans) at the end of September 1961.

All fish oil surplus to the requirements of local consumers was sold to a single international buyer for consumption in the United Kingdom and Europe. Not all the record production of fish meal was disposed of in the course of the season by reason of the export quota system imposed upon members by the Fish Meal Exporters' Organization (embracing Angola, Iceland, Norway, Peru, and South Africa/South-West Africa). The countries that

**South Africa Republic and
South-West Africa (Contd.):**

belong to the Organization account for more than 90 percent of world exports of fish meal.

Members of the Organization have agreed to pursue a common policy, with a view to preventing a recurrence of the disturbed speculative market conditions of 1959 and 1960 and to ensure a continuity of supply to consumers at realistic price levels. The activities of the Organization have had a significant impact on the fish meal market and have resulted in a 50 percent rise in price from the very low levels that prevailed during 1959/1960. The Fish Meal Exporters' Organization at the International Fish Meal Conference held in Rome in March 1961, under the auspices of the Food and Agriculture Organization of the United Nations, invited all countries producing supplies surplus to their own requirements to subscribe to membership.

In the fishing industry, there appears to be only one truly global organization and that is the International Association of Fish Meal Manufacturers (this is an entirely separate organization from the Fish Meal Exporters' Organization). The Manufacturers' group handled a difficult marketing situation for fish meal which became apparent in 1959/60. It is cooperating with other organizations in promotion activities and the dissemination of scientific knowledge to assist in the requirements of, and demand for, fish meal and the exploration of the requirements of, and demand for, fish meal and fish flour for human consumption.

In South Africa there are closely-knit organizations already in existence which could readily belong to global units. Two such are the South African Fish Oil Producers' Association (Pty.) Ltd. and the South African Fish Canners' Association (Pty.) Ltd. The primary function of the first-named organization is the marketing of fish body oil, which it does very successfully. Its position vis-a-vis buyers is relatively weaker than is the corresponding position of its sister organization, the South African Fish Meal Producer's Association (Pty.) Ltd. by reason of the greater number of commodities in competitive supply, as for instance whale oil and various vegetable oils. Fish meal has not the same strongly competitive position to contend with, and the situation has now arisen that, while its price has firmed considerably

in world markets, that of fish oil, in complementary supply, has shown a disappointing weakness as reflected in the lower price obtained for the 1962 production.

The South African Fish Canners' Association (Pty.) Ltd. does not handle the actual sales of canned fish, which are made by individual canners or selling combines of their own creation, but it acts as a forum where problems common to all fish canners may be discussed, and, in this way, serves a very useful purpose.



South Africa Republic

**PILCHARD-MAASBANKER FISHERY,
JANUARY 1962:**

Off the Cape west coast of the South Africa Republic the 1962 pilchard-maasbunker (jack mackerel) season made a good start. The January pilchard catch was only a few thousand tons short of the record landings of January 1961. Good fishing continued through February 1962 and into March. Although the landings were not far below those of 1961, the pilchards were not of the same high quality as those brought in last year. This is shown by the oil yield from the fish meal plants, which is well below that of the first few months of 1961.

It seems that fishermen and factories were not interested in catching mackerel and maasbunker during the short shoal fishing season permitted during November and December 1961. In those two months at the end of 1960 nearly 30,000 short tons of mackerel and maasbunker were landed. In November 1961 the total catch was 2,103 tons maasbunker and 76 tons mackerel; even less fish were caught in December--183 tons maasbunker and 124 tons mackerel. The total catch in those two months of 1961 was a mere 2,502 tons.

One reason for this small catch was the steady development of tuna fishing off the Cape coast using "shoal" fishing boats for long-lining during the off-season.

The Cape west coast fish catch in January comprised 64,388 short tons pilchards, 1,216 tons maasbunker, and 6,046 tons mackerel. The total catch was 71,650 short tons. This compares with 68,878 tons pilchards, 6,745 tons maasbunker, and 3,821 tons mackerel landed in January last year; and with 23,162 tons pilchards, 5,694 tons maasbunker, and 2,147 tons mackerel in January 1960.

The January 1962 catch yielded 16,163 short tons of fish meal, 967,432 imperial gallons of fish body oil, 1,052,448 pounds of canned pilchards, 585,168 pounds of canned maasbunker, and 1,776,264 pounds of canned mackerel.

The January 1961 catch yielded 17,286 short tons of fish meal, 1,342,460 imperial gallons of fish body oil, 2,312,272 pounds canned pilchards, 1,763,416 pounds canned maasbunker, and 819,366 pounds canned mackerel. (The South African Shipping News and Fishing Industry Review, March 1962.)



South-West Africa

PILCHARD-MAASBANKER

CATCH QUOTA FOR 1962 INCREASED:

The South-West Africa pilchard-maasbanker (jack mackerel) fishing industry has been allowed another large increase in the year's catch quota. In 1961 this limit for the six Walvis Bay factories was raised by 65,000 tons to 375,000 short tons distributed equally among the factories. For 1962 the quota has been raised by another 60,000 tons to 435,000 tons.



With each of them set to process 72,500 short tons of fish during 1962, the Walvis Bay factories started early this year. Nearly all the factories were expected to be in operation by the end of March.

Early reports indicated that the pilchards shoals were abundant and readily available although the fish were medium size with an oil yield of about 12 gallons a ton.

The decision of the South-West Africa Administration to allow an increase in the catch quota results apparently from a recommendation by the South-West African Fisheries Advisory Council which met in Cape Town in February 1962.

The Council, which advises the Executive Committee of the Administration, is made up of representatives of the Administration, research bodies, the fishing industry in the Territory, and fishermen. (The South Afri-

can Shipping News and Fishing Industry Review, March 1962.)



Spain

FROZEN TUNA EXPORTS TO ITALY:

The Japan Export Trade Promotion Association (JETRO) received information from its representative in Venice, Italy, that Spain reportedly is exporting Atlantic Ocean-caught tuna to Italy. According to the report, Spanish fishing vessels have landed an estimated 700-800 metric tons of skipjack, including some small yellowfin, at Venice and two other Italian ports since February of this year. Presumably, these tuna are being admitted into Italy under the 25,000-ton duty-free Italian quota established by the Common Market, of which 14,000 tons have been allocated to Japan and 11,000 tons to other countries.

The Japanese fishing industry is closely watching Spain's tuna exports to Italy since Italy had originally agreed to increase Japan's quota, if imports from other countries fell short of 11,000 metric tons. This development is viewed with concern by Japan which, until recently, had practically supplied all the raw tuna to Italy.

Reportedly, the Spanish tuna exports to Italy are round frozen in brine and the fish ranged between 3-10 kilograms (6.7-22.4 pounds). The fish sold at about US\$275 per metric ton. Meat recovery is reported to be 33-34 percent, in which case the price paid for the fish seems fairly high. Italy reportedly has contracted to purchase 1,800 tons of tuna from Spain this year. (Suisan Keizai Shim bun, May 5, 1962.)

CANNED TUNA INDUSTRY:

The Japan Export Trade Promotion Association (JETRO) in May 1962 released a report on the canned tuna industry in Spain and Portugal. A translation of the report on Spain follows:

The canned tuna pack in Spain of 19,480 metric tons in 1959 comprised 35 percent of the total pack of canned marine products, and was valued at 628,730,000 pesetas (US\$57.4 million). Tuna packed in olive oil totaled 13,370 metric tons, or about 70 percent of the total canned tuna pack, which in 1959 reportedly was much less than in the preceding year.

In Spain there are approximately 800 canneries employing 35,000 workers, of which 75 percent are women. Thirty percent of the workers are regular employees. Most of the canned tuna is packed in the northwestern area (Galicia) and the Cantabrian district. The principal ports serving the canneries are also concentrated in those areas. In Vigo and oth-

Spain (Contd.):

er parts of the northwestern area, modern packing plants have been constructed, but in general, the canning industry in that area is not progressive. In 1960, 17 percent of Spain's canned tuna was packed by the two large packers located in Vigo (which are the two largest packers in Spain), 43 percent by canneries producing between 1-3 percent of the total canned tuna pack, and 40 percent by 700 small canneries.

Tin plate is manufactured only by one company, which cannot possibly supply the domestic demand, so Spain continues to import this material. Import duties collected for tin plate are refunded if it is used to make cans utilized to pack fish products for export. But this arrangement has not worked out very well. Almost every cannery has at least one tin-plate cutting machine with which to cut and make cans, but the printing work on cans is normally contracted out. There are large can manufacturers in Spain, including a recently-built factory with a productive capacity of 100 million cans per year. Some progress has been made toward standardizing specifications for tin cans, but no standardization has been attempted for aluminum cans.

It is believed that 75 percent of the tuna packed in Spain is sold to the domestic market and 25 percent is exported. Canned tuna, canned sardines, and canned anchovies are the leading canned fishery products exported by Spain. Those three items together constitute 60-90 percent of Spain's total exports of canned fishery products.

Principal countries to which Spain exports canned tuna are Switzerland, Italy, France, Great Britain, and the United States. At one time the United States was viewed as a promising market, but Spanish exports to the United States began to decline in 1960 and apparently this situation has not yet improved. (JETRO Report, May 1962.)

* * * * *

VIGO FISHERIES TRENDS,
FIRST QUARTER 1962:

Fish unloaded at the port of Vigo during the first quarter of 1962 was 44.8 percent less in weight and 13.7 percent less in value than during the last quarter of 1961, and 23.1 percent less in quantity and 6.5 percent less in value when compared to the first quarter of 1961. Average price per kilo for the first three months of 1962 was 13.24 pesetas (10 U. S. cents a pound) compared with 9.80 pesetas (7.4 cents a pound) for the fourth quarter of 1961 and 10.84 pesetas (8.2 cents a pound) for the first quarter of 1961.

Table 2 - Fish Handled by the Vigo Fish Exchange, First Quarter 1962 with Comparisons

Period	Quantity	Value	
		Metric Tons	1,000 Pesetas
1962: Jan.-Mar.	11,065	146,117	2,435
1961: Oct.-Dec.	20,041	169,325	2,822
Jan.-Mar.	14,387	155,191	2,603

Table 3 - Utilization of Fish Landed at Vigo Fish Exchange, First Quarter 1962 with Comparisons

	Shipped Fresh to Domestic Markets	For Canning	Other Processing (Smoking, Drying, Fish Meal, etc.)	Local Consumption
			(Metric Tons)	
1962:	.....	.....	.....	.....
1st Qtr.	8,624	565	1,180	716
1961:	.....	.....	.....	.....
4th Qtr.	10,110	5,365	3,728	838
1st Qtr.	10,637	1,045	1,888	817

Decreases in small hake, pomfret, and sardine landings were the reason for the drop in quantity during January-March 1962 when compared to the same period in 1961. (United States Consulate, Vigo, April 19, 1962.)



Tahiti

PROGRESS OF TUNA BASE PLAN:

A Japanese trading company which has entered into an agreement with a large United States tuna packer to jointly establish a tuna fishing base at Tahiti in the South Pacific Ocean, is steadily proceeding with its plans to procure fishing vessels. As soon as the company's application is approved by the Japanese Fisheries Agency, construction of the 1,100-ton capacity cold-storage plant in Tahiti is expected to be undertaken. Under the present plan, the base is to be ready for operation in 1963.

Table 1 - Average Ex-Vessel Prices of Principal Species Landed at Vigo Fish Exchange, First Quarter 1962 with Comparisons

Species	1962			1961					
	January-March			January-March			October-December		
	Qty.	Avg. Price		Qty.	Avg. Price		Qty.	Avg. Price	
	Metric Tons	Pesetas/Kilo	US\$/Lb.	Metric Tons	Pesetas/Kilo	US\$/Lb.	Metric Tons	Pesetas/Kilo	US\$/Lb.
Octopus	1,711	4.44	3.4	1,838	6.03	4.6	116	5.88	4.4
Horse mackerel	1,662	6.00	4.5	753	5.88	4.4	2,763	5.04	3.8
Hake, large	145	59.16	44.7	91	60.83	45.8	103	57.58	51.1
" small	2,794	23.07	17.4	4,519	16.81	12.7	2,313	24.40	18.4

Tahiti (Contd.):

Approval by the Fisheries Agency has been delayed since the Agency is confronted with other tuna problems at the present time. Reportedly, the trading company plans to charter 14 vessels of the 99-180 ton class and has already secured agreements with fishing vessel owners. (Suisan Keizai Shimbun, May 2, 1962.)

Editor's Note: This is one of two applications to establish a tuna base at Tahiti. The other application involves a Japanese fishing company, a large United States tuna packer, and a French firm.



Taiwan

TUNA FISHING VESSELS
ADDED TO FLEET:

A continued increase in fishery production is expected in Taiwan (Formosa) during the remainder of this year as additional boats are added to the fishing fleet. Two 550-ton tuna vessels constructed in Japan were delivered to a Taiwan fishery firm in April 1962 and 12 145-ton tuna vessels being constructed locally with United States aid funds are due for delivery in September. When in service, these vessels are expected to increase the fisheries catch by some 7,000 metric tons annually.

In addition to the vessels mentioned, the Provincial Government plans to apply to the United Nations for a loan to help construct a 700-ton vessel to investigate fishery resources in the Indian and west Pacific oceans.

The Government's recently formalized application to IDA for a US\$6.3 million loan to finance construction of new fishing vessels is still under consideration. These vessels would be part of the Government's over-all plans to develop the fishing industry. The plans also call for establishing fishing bases abroad, improving shipbuilding techniques on the Island, training fishery technicians, and expanding export sales.

In March 1962, a Taiwan firm sold five tons of frozen shrimp to France. It is reported that this is the first time shrimp have been exported from Taiwan.

By the end of March 1962, Taiwan's fishery landings in 1962 totaled 68,638 metric tons, 15.2 percent more than in the first quarter of 1961. (United States Embassy, Taipei, report of May 21, 1962.)



U.S.S.R.

SOVIET FISHING ON GEORGES BANK IN
NORTH ATLANTIC, APRIL 1962:

The large fleet of Soviet vessels (SRT's) fishing for herring moved away from Georges Bank to more northerly waters towards the end of April 1962. The Soviet VNIRO (Federal



Herring gill nets being hauled by a Russian drifter-trawler on Georges Bank.

Research Institute for Fisheries and Oceanography) recommended that the combination gill net-trawl vessels (SRT's) shift to trawling for groundfish during the summer months. (Rybnoe Khoziaistvo, February 1962, and unpublished sources.)

* * * * *

SOVIET FISHING ON GEORGES BANK IN
NORTH ATLANTIC, MAY 1962:

In late May, the Soviet fleet on Georges Bank numbered well over 150 vessels, exceeding the peak of 110 vessels reported fishing in the area in late 1961. This year's fleet includes 150 to 180 herring gill-netters, a tanker, a seagoing repair tug, and four cargo-type motherships. (Unpublished sources.)

* * * * *

HERRING FISHING IN NORTH ATLANTIC:

The early arrival of Soviet stern trawlers at the Georges Bank fishing grounds in the North Atlantic in February 1962,

U. S. S. R. (Contd.):

four months in advance of their 1961 arrival, is explained in the January 1962 issue of *Rybnoe Khoziaistvo*. During the first half of 1961 the Soviet herring catch from the North Atlantic slightly exceeded the planned half-yearly quota (by 0.5 percent), but in the third quarter the catch was only 55.7 percent of the quarterly plan. It had been equally poor in October and only somewhat better in November. In the second half of 1961 the herring catch in the Atlantic dropped 162,000 metric tons below the plan.

This failure, according to the Soviets, was due to: (1) bad weather in the second half of the year; (2) late fattening and late herring concentrations in usual catch areas; (3) fewer vessels fishing because many were in dock for repairs; and (4) insufficient exploitation of the Northwest Atlantic fishing grounds where the fishing conditions were better.

The Atlantic herring catch was so poor that the overall Soviet production of fish for human consumption was merely 94 percent of the yearly goal. Only 7 out of 20 of the Russian Republic's Sovnarkhozes (Regional Economic Councils) obtained the planned amount of fish for human consumption. The fishing fleets of Arkhangel'sk, Murmansk, Karelia, Kaliningrad, and the Baltic Republic failed to fulfill their quotas.

Another reason for the early arrival of the Soviet fishing fleet on Georges Bank in 1962 was the way the 1961 catch had been planned. The total yearly increase was to have been 6.7 percent over 1960, but its quarterly distribution was uneven. Only a 1-percent increase was allotted the first quarter, while the third quarter's increase was to be 17 percent above the 1960 third quarter. The early return of the 1962 fishing fleet may show that the Soviet quarterly quotas have been redistributed for 1962, requiring a larger catch earlier this year than in 1961. Early returns also show that the Soviet Atlantic fleet is following directives from the Soviet Fishery Administration which demand that: (1) Fleets of the Sovnarkhozes of the Soviet Northwest which had failed in meeting the 1961 herring quota must not concentrate their SRT's (medium fishing trawlers) in the North Atlantic only, but must also fish the Northwest Atlantic and the North Sea; (2) during the summer months when herring catches in the North Atlantic decrease, some of this fleet must fish the South Atlantic along the African Coast.

The Administration of the Murmansk fishing combine is striving to better its herring catches in 1962. Additional and more modern vessels were placed in the herring fishery fleet which reportedly were to sail from Murmansk to Iceland on June 10, 1962. As in previous years, the Soviets will depend on pair trawling, but will do more purse-seining with nets of lighter and thinner twine. (*Rybnoe Khoziaistvo*, No. 1, January 1962; *Fiskaren*, February 14, 1962.)

* * * * *

FISHING IN SOUTH ATLANTIC
OFF SOUTH-WEST AFRICA:

By the end of 1961, a total of 25 Russian fishing vessels had used the facilities of Walvis Bay harbor, South-West Africa, for water, stores, and some minor repairs. The majority were stern trawlers, of either the 3,700-ton Pushkin-class or the larger Maikovskii-class factory trawlers. In the course of the year, three refrigerated fish transport vessels were identified. One of the transports was accompanied by a 70-foot steel-hulled purse-seiner towed out from a Russian base.

The purse-seiner was described as a type that might have been developed for the North

Sea herring fishery. The deckhouse was just aft of amidships and there was a turntable on the stern for launching a large synthetic net. Later this same vessel was seen among the local pilchard boats as they were making their catches. Walvis Bay fishermen reported that the seiner made a number of unsuccessful attempts to net pilchards. Several weeks later, after having had no success, the vessel returned to Russia.

In January 1962 the Russian South Atlantic fishing fleet was still fishing white fish off the coast of South-West Africa. There were 8 to 10 trawlers and two depot ships operating between Walvis Bay and Tiger Bay in Angola. During December 1961, Walvis Bay was visited by the superintendent of this fleet. He stated that Russian interest was still in white fish and deep-sea trawling; the ships present were not equipped for pilchard catching. The catches, he said, were being sent back to Russia.

During January 1962, another Russian research ship made a second appearance at Walvis Bay, having called in June 1961 the first time. The vessel in the meantime returned to Russia for some time and was now back in South-West African waters to conduct research into the eating habits of the fish and the plankton resources of the area. In the same month, a stern trawler also called for water and stores. Its Captain Yerzenyev stated that the rest of the fleet was operating off the Angola coast, about 10° south latitude.

There were no other reports of Russian fishing activity off South-West Africa until mid-April 1962. At that time it was reported that three Russian factoryships had put into Walvis Bay for water and provisions and a fourth had put in for repairs. On April 19 another stern trawler put in for repairs.

Because of foreign vessels fishing off South Africa, there is a growing sentiment that the South African Government must extend its own territorial waters and those of South-West Africa to 12 miles. Representations to this effect have been made from Walvis Bay by fishing factories, the Boat Owners' Association, the Chamber of Commerce, and the Mayor. The Administrator of South-West Africa expressed the hope that the Government would extend the limits to 12 or 15 miles. (United States Consulate, Capetown, May 8, 1962.)

* * * * *

U. S. S. R. (Contd.):

NEW VESSELS FOR ATLANTIC FISHERIES:

Since the end of 1961, five large fishing vessels were completed for delivery to the Soviet Atlantic fishing fleet.

Three were Maiakovskii-class sterntrawlers: Ametist, Kapitan Andrei Taran, and Linard Laytsen. They are freezer trawlers of 3,170 gross tons and 85 meters (almost 279 feet) long. Each vessel is equipped with processing and fish meal-manufacturing equipment. The crew for each vessel numbers over 100 men.

The other two of the five vessels are the Sovetskaia Latvia and Albatros, 3,230-gross-ton refrigerator factoryships, designed for taking on board split and whole fish from other fishing vessels, quick-freezing them, and delivering them to home fishing ports. Each vessel is 99 meters (almost 325 feet) long, has a speed of 15 knots, and carries a crew of 82 persons. (Unpublished sources.)

* * * * *

RESEARCH ON PACIFIC HERRING MIGRATIONS:

During 1956-60, TINRO (Soviet Pacific Institute for Fishery Research) tagged 22,600 Sakhalin herring with a return rate of 3.38 percent or 764 herring. It was established that Sakhalin herring winter in two areas: the Tartar Channel and Aniv Bay.

Soviet Bering Sea herring catches rose from none in 1960 to 68,000 metric tons in 1961. Catches in 1962 are reported to be considerably higher than in 1961. (Rybnoe Khoziaistvo, February 1962, and other sources.)

* * * * *

NORTH PACIFIC SALMON STUDY:

A study of the North Pacific salmon in accordance with the Northwest Pacific Fisheries Convention (U. S. S. R. and Japan) is being conducted by two vessels of the Pacific Research Institute of Fisheries and Oceanography (TINRO). One vessel will work in the south part of the Japanese Sea and the other in the North Pacific. On board the vessels are ichthyologists, biologists, hydrobiologists, and other specialists.

This year the institute will conduct a most thorough and widespread study of salmon.

Besides the sea investigations, a large research program is planned in the Far East. Spawning surveys of the rivers of Kamchatka, Magadan, Khabarovsk, and Primorskii Krai regions will be conducted with the use of helicopters. (From a translation from Vodnyi Transport, April 12, 1962, by D. E. Bevan and O. A. Mathisen, Fisheries Research Institute, Seattle, Wash.)

* * * * *

FISHING ACTIVITIES IN BERING SEA, APRIL 1962:

In the Bering Sea fishery, over 200 Soviet vessels were sighted in the last week of April 1962. They were fishing for herring, flounder, and ocean perch. The fleet included 5 factoryships, 166 trawlers, 29 refrigerated transports, and several tankers and tugs. Of those



Typical Russian trawler operating in the Bering Sea.

vessels, 143 were operating in Bristol Bay and north of Unimak Island; 50 of them were in the area of the Pribilof Islands. Eight whale killers were operating in the Gulf of Alaska supported by two whale-processing ships. (Unpublished sources.)

* * * * *

NEW FREEZER-TRAWLER FISHING IN BERING SEA:

The new freezer-trawler Barabash, launched earlier this year at Nikolaev on the Black Sea, arrived in the North Pacific in May 1962. During a successful shakedown cruise off the west coast of Kamchatka, the vessel took 33,000 pounds of fish in a 50-minute drag.

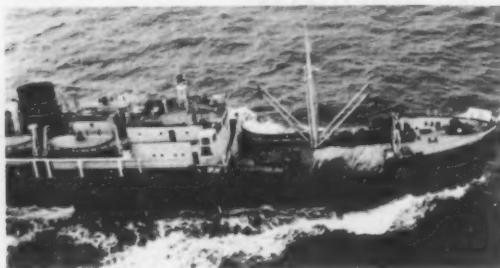
The vessel departed for the Bering Sea to trawl for ocean perch, flounder, and herring. The vessel is 3,170 gross tons, 279 feet long, and is manned by a crew of 102. (Unpublished sources.)

* * * * *

U. S. S. R. (Contd.):

FISH PRODUCTION FOR HUMAN CONSUMPTION:

The total Soviet production of fishery products for human consumption in 1961 was 1,682,900 metric tons (product weight). The supply was 94 percent of the planned production. The production of fresh and frozen fish amounted to 778,000 tons which compares favorably with the 674,000 tons produced in 1960.



Typical Russian trawler operating in the Bering Sea.

The 1962 plan calls for a production of 1,936,500 tons of fishery products for human consumption from a total catch of 3,937,000 metric tons. It was previously reported that the Soviet Union's fisheries catch in 1961 was about 3.7 million metric tons of fish, whales, and other aquatic products. (Rybnoe Khoz-istvo No. 1, 1962.)

Note: See Commercial Fisheries Review, May 1962 p. 73.

* * * * *

FISHERIES DEVELOPMENTS IN FAR EAST:

The following article is a translation of a news story published in the Japanese fisheries periodical The Fishing Industry Weekly. It discussed the managerial and operational problems faced by the Soviet Union in its Far East fisheries. The Japanese article was originally translated from Russian by Haruyuki Sakiura, who is listed as translator for the Japanese Fisheries Agency.

According to Sakiura's introductory remarks, he was able to obtain the notes of a special reporter from an influential Russian newspaper, who was assigned to cover the Soviet Far East fisheries. The notes describe observations made by the Russian reporter, as follows:

Recently I had the opportunity of visiting the Soviet fishermen in the Soviet Maritime

Province, Sakhalin Island, and Kurile Islands, and also spent considerable time aboard a Soviet factoryship which operates in the waters extending from the Japan Sea to the Okhotsk Sea and then to the Bering Sea. The many things that I saw with my own eyes convinced me that the Soviet Far East fishermen were capable of successfully applying the marvelous technological developments provided to them by their Soviet shipbuilders. However, during this trip, which was my first tour of the Soviet Far East fishery, I also witnessed some disturbing aspects of this industry, which I will now relate.

King Crab Factoryships Discard Crabs:

There was conspicuous evidence that captured crabs were not being properly handled by the crab-canning factoryships. For example, crabs that had been left on the deck for even a short while beyond a specified length of time were handled as though they were no longer useful, although they could have been processed and canned as food for domestic animals. Food experts have proven the high nutritional value of such canned food for animal consumption. However, none of the factoryships were processing them and, instead, were wastefully throwing them overboard...

The Leningrad Shipyard had installed on one of the crab factoryships, equipment to process crab shells into crab meal, a valuable poultry feed. During the 1961 crab fishing season, this factoryship produced only a very small quantity of crab meal totaling 2,313 centners (231 metric tons)... . Why weren't all the crab shells processed and made into crab meal? There is a reason for this. King crabs are canned according to a rigid rule whereby data on production must be reported daily to the production control room; whereas, crab meal production does not necessarily have to be reported, so whether or not crab meal is produced does not matter. For this reason, hardly anyone on the factoryship took any interest in crab meal production.

Other crab factoryships had absolutely no equipment, such as a grinding machine, with which to produce crab meal; moreover, they were old and too small to accommodate such equipment. According to the chief administrator of the crab fishing fleets, full utilization of crabs cannot be expected until the old vessels are replaced by new ones, a change which he strongly desires.

Modernization of all the crab factoryships, however, cannot be accomplished in one or two

U. S. S. R. (Contd.):

years. The solution, then, seems to lie in providing one or two auxiliary vessels, equipped with drying and grinding machines, to collect crab shells from factoryships and process them into crab meal. If this is done, it would be possible to produce more than 10,000 metric tons of crab meal for the Soviet poultry farms in the Far East. Drying and grinding machines are now being manufactured in the Soviet Union.

Saury Fishing and Production: The Soviet crab motherships began to conduct saury fishing in addition to crab fishing from the third year of their operations in the Far East waters. Saury, which are taken in the Far East waters, have a delicious taste and are very popular among fish consumers. Processing of both crab and saury should double production of the crab factoryships. Saury processed by the factoryships were all packed in oil. Saury can be marinated or salted, and when smoked, their taste is matchless. Perhaps some kind of an arrangement should be made whereby one factoryship packs saury in oil, another packs marinated saury, and the third salted saury. Shore canneries are equipped with smoking facilities and could produce smoked saury. Freezer vessels could also be utilized to supply delicious frozen saury to the coastal cities which, incidentally, do not receive an adequate supply of fresh fish....

Another matter which requires special mentioning is that production of canned saury could have been greater than actual output. On days when saury landings were so large that the factoryships could not possibly process the entire catch, the saury could have been transported to the processing plants on land by means of freezer carrier vessels or small refrigerated vessels. To be sure, the coastal packing plants have sufficient capacity to produce more than their current output, but there is no coordination of activities between the factoryships and shore plants, although they are both organized and controlled by the Soviet Far East Fisheries Bureau.

Saury fishing is regulated and fishing vessels are prohibited from taking saury in quantities beyond the processing capacity of each factoryship. This regulation became necessary because of the increase in the number of fishing vessels serving the factoryships. Needless to say, this is a time when small

refrigerated vessels can really be put to good use.

Quite understandably, the Far East Fisheries Bureau leaders are always complaining about the lack of refrigerated vessels and the Soviet fishermen are saying that the problem confronting them cannot be solved unless the number of refrigerated vessels are increased. The most important thing, however, is to eliminate idle vessels through efficient utilization of freezer carrier vessels. In the ports of Vladivostok and Nakhodka, fishing vessels are compelled to wait between 8 and 12 days to unload their catches, due to lack of unloading facilities and shortage of small refrigerated vessels....

With the exception of one factoryship named the Andrei Zakharov, Soviet factoryships are not equipped to process saury waste, which constitutes 40 percent of the fish. Head sections, viscera and tail sections, which contain much valuable minerals, are discarded. No one seems to seriously consider the use of fish waste. Even the Andrei Zakharov, which is equipped to process waste, is not producing even one gram of fish meal, for that factoryship has no production goal for fish meal and so there does not seem to be any enthusiasm on the part of the factoryship personnel to produce it.

Saury are known for their high oil content, but none of the factoryships are furnished with equipment to extract oil....

Oil is not difficult to extract from waste products according to the factoryship's technologist, a woman. She says that this can be done simply by installing in the factoryship a centrifuge to separate fish oil from stick-water under high pressure. Water is eliminated and the oil is then placed in separators. The technologist says that the factoryships operating in the Caspian Sea turn their fish waste over to vessels specially equipped for processing waste, and she could not see why the same thing could not be done by the factoryships operating in the Far East waters.

Coastal Plants Suffer from Raw Material Shortage: The Soviet Far East fish-processing plants definitely can be organized to locally process fish fillet, as well as smoked and marinated fish. In earlier days, the fishermen in the Maritime Province obtained most of their catches from nearby waters, so the Maritime Province Regional Fisheries Bureau had established large plants on the

U. S. S. R. (Contd.):

coast to process the catches. However, in recent years, the fishing grounds have shifted to the open seas, and fish processing is now conducted mainly by factoryships. As a result, most of the coastal plants are now operating at one-fourth of their production capacity. Moreover, their operations have become seasonal. The problem confronting the Far East Soviet fishermen can be readily solved by utilizing these idle facilities. The Soviet Far East Fisheries Bureau and the Maritime Province Regional Party Committee should exert their best efforts to remove the obstacles hampering the healthy growth of the Soviet Far East fisheries. (Japanese periodical, The Fishing Industry Weekly, No. 339, April 25, 1962.)

* * * * *

FAR EAST CANNED FISH PACK:

In 1965, the canned fish pack of the "Soviet Far East Fisheries" is expected to be 254 million standard cans (350 grams or 12.3 ounces per can). In 1958, the pack was 110 million cans. (Biblioteka Agitatora, Vladivostok, 1961.)

* * * * *

SAURY FISHERY INFAR EAST BEING EXPANDED:

Pacific saury (Cololabis saira) is fast becoming a major species of the Soviet Far Eastern fisheries. Canned saury undoubtedly will become the most important product of the region's fish-canning industry. By 1965, the end of the seven-year plan, the annual pack of canned saury is expected to reach 143 million standard cans. (Rybnoe Khoziaistvo, January 1962.)

The Soviet research vessel Rubtsovsk early this year completed an exploratory fishing trip in the East China Sea where sardines, mackerel, and jacks were taken. Observations were also made on oceanographic and weather conditions. (Unpublished sources.)

* * * * *

NUMBER OF MEN WHALING IN ANTARCTIC INCREASED:

For the 1961/62 Antarctic whaling season the Soviet Union increased the number of men engaged in whaling by an estimated 1,150 persons. This is in marked contrast

with decreases in Norwegian (820 persons) and British (221 persons) personnel. This season's increase in Soviet manpower is due to the fact that the newly-constructed 45,000-ton whale factoryship Sovetskaya Rossiia started its Antarctic operations.

The total Soviet manpower in Antarctic whaling this season was estimated to be 4,050 men, or about 20 percent of the total manpower engaged in whaling in that area. As recently as the 1956/57 season, the Soviet whaling fleet in Antarctica employed only 850 men or 5 percent of the total. (Norsk Hvalfangst-Tidende, No. 2, 1962.)

* * * * *

FOUR FISH-FREEZING MOTHERSHIPS TO BE BUILT IN DENMARK:

In early May 1962, the first of four Soviet fish-freezing and refrigerator mothership vessels was christened the Skrypnev in a Copenhagen shipyard. The vessel has a dead-weight of 2,600 tons, is about 300 feet long, and a beam of about 53 feet.

The complement of the vessel is not known but it will carry four 25-foot lifeboats, each with a capacity of 53 people. The vessel is not designed for actual fishing operations, but has a stern slipway presumably for taking aboard nets filled with catches made by other vessels. (United States Embassy, Copenhagen, May 24, 1962.)

* * * * *

SOVIET-VIETNAMESE COOPERATION IN FISHERY RESEARCH:

The second Joint Soviet-Vietnamese Research Expedition ended its work in the Gulf of Tonkin late in 1961. The expedition was organized by TINRO (Soviet Pacific Institute for Fishery Research) primarily to determine sardine and tuna populations in the Gulf, though research was also done on groundfish and oceanography.

In addition, a team of Soviet specialists taught Vietnamese fishermen modern fishing and exploratory techniques. The first Joint Soviet-Vietnamese Expedition was organized in 1960. (Rybnoe Khoziaistvo, February 1962.)

* * * * *

OCEANOGRAPHIC ACTIVITIES IN NORTHERN EUROPEAN SEAS, 1962:

In 1962 Soviet investigators plan to make oceanographic observations and investigate

U. S. S. R. (Contd.):

water masses in the northern European seas, the near northern seas, the Baltic Sea, and on fishing grounds of the eastern Atlantic. Investigations will be carried out from vessels of the Hydrometeorological Service and the Fisheries Research Institutes.

Medium fishing trawler types will work in the northern regions and in the Baltic Sea; large fishing trawler types will conduct observations in the Atlantic Ocean. Standard programs within the framework of International Standard Observations will be made in the Baltic Sea. Oceanographic observations will be made at the herring fishing grounds of the Norwegian Sea, at cod fishing grounds of the border region between the Norwegian and Greenland seas up to Jan Mayen and in the border regions between the northern European seas and the North Atlantic.

Investigations of the thermal and dynamic ocean-atmosphere interrelationships and evaluation of predictions of oceanographic conditions, with particular emphasis on fisheries aspects, will be continued. (National Oceanographic Data Center Newsletter, April 30, 1962.)

Note: See Commercial Fisheries Review, June 1962 p. 63.



United Arab Republic (Egypt)

STATUS OF FISHERIES:

Egypt's fisheries, which are under the jurisdiction of the General Organization for the Development of Marine Wealth, remain to be intensively developed. Egypt has a coastline of more than 1,500 miles, one million acres covered by lakes, and the Nile River and its tributaries. The commercial catch in 1960 was approximately 85,000 metric tons, one quarter of which was taken in the Mediterranean and Red Sea and the balance in lakes and rivers. Of the total, 2,500 to 3,000 tons were shrimp, now becoming an important export for Egypt. Value of the 1960 fishery catch was about £E10 million. Per capita consumption is estimated to be 4 kilos (8.8 pounds) per year.

Despite the apparent potential of Egyptian fisheries, the United Arab Republic remains a net importer of fish. In 1960, 9,039 metric tons were imported (principally herring, sardines, and tuna) as against 1,856 metric tons

exported. Exports of crustaceans (chiefly shrimp) show continuing increase. From a level of 1,061 metric tons in 1960, those exports rose to 569 metric tons in the first half of 1961, of which 401 metric tons were destined for the United States.

The fishing fleet consists of about 13,000 craft, of which 3,000 are used in sea fishing. Of the total only about 500 are motorized. There were 65,000 licensed fishermen in 1960, including 20,000 boys under 16 years of age. About 200,000 wage-earners are employed in allied industries such as processing, marketing, and transportation, and fishing vessel, sail, and net production.

Shore facilities include five freezing plants with a capacity of 1,500 to 2,000 metric tons of shrimp per year, and a canning plant for sardines and shrimp with an annual capacity of 4 million cans. (United States Embassy, Cairo, report of May 9, 1962.)



United Kingdom

FISHING LIMIT ZONE OF
12 MILES MAY BE ADOPTED:

There are reports that Britain is planning to adopt the 12-mile fishing limit zone, according to the British periodical Fish Trades Gazette, May 26, 1962.

Reports that the Government is planning to extend the British fishing limits to 12 miles were received enthusiastically at many of the inshore British ports. It is understood that details of the proposal are now being worked out and that the new 12-mile fishing zone is likely to be introduced early next year.

* * * * *

ELECTRONIC THAWING OF
FROZEN FISH:

Dielectric heating makes it possible to thaw a block of frozen white fish within 15 minutes, almost independently of the block size. Frozen herring can be thawed in 5 minutes. Earlier methods, depending on a gradual thawing from the surface, meant a great strain on the product. Even when flowing water is used that method is lengthy and time-consuming.

Dielectric thawing, developed by the Torry Research Station, Aberdeen, can be adopted

United Kingdom (Contd.):

as a continuous process. It must be very closely controlled, however. In the experiments, radio-frequency generators giving six kilowatts and operating in the range of 36 to 40 mc/sec. were used. The frozen fish is conveyed continuously in between the electrodes, and on the assumption that the electrical current is delivered uniformly and held under certain critical limits, an adjustment can easily be made for fish of different sizes. Above such a critical level the heating very easily becomes uncontrolled and spotty. Certain sections of the fish may readily absorb a larger part of the energy, becoming cooked while other parts of the block remain frozen.

Blocks frozen at sea may easily have an irregular form, which may cause such difficulties.

With dielectric heating it is possible to thaw such blocks at 25° C. (77° F.) within 75 minutes, whereas it takes 18 hours in air under controlled conditions. The investment is US\$28,000 dollars for a plant with a thawing capacity of one metric ton per hour. The cost of thawing is about one-third of the cost of freezing. The method is now commercially employed in a large shore establishment at Grimsby on the river Humber. (Food Technology, April 1962.)

Note: See Commercial Fisheries Review, June 1961, p. 86.



TRY TUNA SALAD FOR MAIN DISH AT PICNICS

Outdoor picnics in the summertime, whether they are held on the beach, in the mountains, in local parks, or just in your own backyard, can be memorable occasions for the family--particularly if the food has appetite appeal.

The food included in any picnic should be tasty, easy-to-prepare, and energy-giving. Canned tuna, which possesses these qualities, is excellent for picnic use as a main course salad.

Along with tuna salad, the home economists of the U. S. Bureau of Commercial Fisheries suggest potato chips, sliced tomatoes, buttered rolls, fruit, cup cakes, and iced tea or coffee as good accompaniments. All perishable foods for picnic use must be refrigerated, caution the home economists.

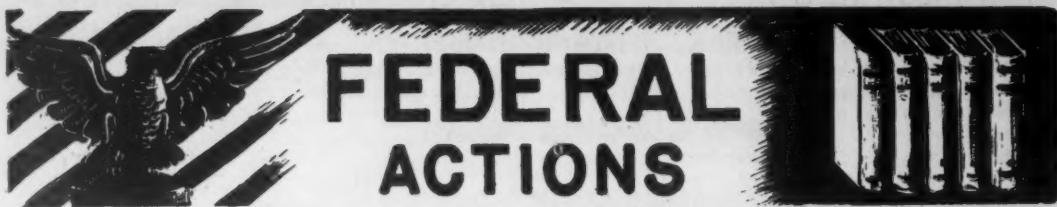


TUNA SALAD

2 cans (6½ or 7 ounces each) tuna
 ½ cup mayonnaise or salad dressing
 1 cup chopped celery
 2 tablespoons chopped sweet pickle
 2 tablespoons chopped onion

2 hard-cooked eggs, chopped
 ½ teaspoon salt
 Dash pepper
 Lettuce
 1 hard-cooked egg, sliced

Drain tuna. Break into large pieces. Combine all ingredients except lettuce and eggs. Serve on lettuce; garnish with egg slices. Serves 6.



FEDERAL ACTIONS

Department of Health, Education, and Welfare

FOOD AND DRUG ADMINISTRATION

HEARING EXAMINER DESIGNATED FOR PUBLIC HEARING ON STANDARD OF IDENTITY FOR FISH FLOUR:

A public hearing on a definition and standard of identity for fish flour or fish protein concentrate was announced by the U. S. Food and Drug Administration in the Federal Register of April 28, 1962. The notice of the hearing stated an examiner was to be designated later to conduct the hearing: Horace H. Robbins, a qualified hearing examiner, employed in the Social Security Administration under the supervision of the Director and Chairman of the Appeals Council, has been designated to conduct the hearing. Designation of the examiner was reported in the Federal Register of May 24, 1962, by the Food and Drug Administration.

PUBLIC HEARING POSTPONED ON STANDARD OF IDENTITY FOR FISH FLOUR:

Postponement of the public hearing on a definition and standard of identity for fish flour or fish protein concentrate was announced by the U. S. Food and Drug Administration in the Federal Register of June 9, 1962.

In response to requests from Senator Douglas, Harold Putnam on behalf of Vio Bin Corporation, and Vincent A. Kleinfeld on behalf of Gulf Menhaden Company, the Agency on June 6 gave notice that the prehearing conference scheduled for June 12, 1962, and the hearing scheduled for June 18, 1962, would not be held until further notice. This was without prejudice to the objectors' requesting that the hearing be rescheduled at a later date. The purpose of the postponement is so that certain studies of the product may be completed.

The hearing was to cover points in a regulation published last January 25 which would have required that fish flour be made from edible, cleaned fish after discarding the heads, tails, fins, viscera and intestinal contents. The January 25 order has been stayed.



Department of the Interior

FISH AND WILDLIFE SERVICE

BUREAU OF COMMERCIAL FISHERIES

NEW FEES FOR FISHERY PRODUCTS INSPECTION SERVICES:

New fees and charges for fishery products inspection services of the U. S. Department of the Interior went into effect on June 1, 1962. Title 50 of the Code of Federal Regulations is changed by amendment, addition, and deletion of sections that specifically apply to fees and charges for fishery inspection services. The new fees and regulations were published in the May 19 Federal Register. The purpose of the changes is to achieve a higher degree of uniformity in the assessment of fees and the method of charging for services rendered. The changes are necessary to offset the normal costs to the Bureau of Commercial Fisheries for rendering the voluntary inspection service on fishery products.

This is the first official proposed change in the rate of inspection fees since the Bureau assumed responsibility for the conduct of the inspection service from the U. S. Department of Agriculture in July 1958. The proposed changes in the rates are a reflection of the increased operating costs to the Bureau in maintaining the program on a sound and self-supporting basis as required under the authority by which this program is conducted. All future proposed changes in rates necessitated by Federal pay acts and increased operating costs will be announced in the Federal Register.

For continuous inspections, the new fee for regular time will be \$4.20 per hour; for overtime \$5.00 per hour. Also included is a schedule of lot inspection fees for officially and unofficially drawn samples.

Interested persons had until April 6, 1962, to submit written comments, suggestions, or

objections on the changes. Two comments were received and considered, and the proposed amendments as published in the March 6, 1962, Federal Register were adopted without change. The new regulations as they appeared in the May 19, 1962, Federal Register follow:

Title 50—WILDLIFE AND FISHERIES

Chapter II—Bureau of Commercial Fisheries, Fish and Wildlife Service, Department of the Interior

SUBCHAPTER G—PROCESSED FISHERY PRODUCTS, PROCESSED PRODUCTS THEREOF, AND CERTAIN OTHER PROCESSED FOOD PRODUCTS

PART 260—INSPECTION AND CERTIFICATION

Fees and Charges

On page 2156 of the Federal Register of March 6, 1962, there was published a notice and text of proposed amendments to part 260 of Title 50, Code of Federal Regulations. The purpose of these changes is to achieve a higher degree of uniformity in the assessment of fees and the method of charging for inspection services rendered under the authority vested in the Secretary of the Interior by section 6(a) of the Fish and Wildlife Act of 1956 (16 U.S.C. 742e(a)). The amounts are deemed to be necessary to offset the normal costs to the Bureau of Commercial Fisheries for rendering such inspection service.

Interested persons were given until April 6, 1962, to submit written comments, suggestions, or objections with respect to the proposed changes. Two comments were received and considered and the proposed amendments are hereby adopted without change and are set forth below. These amendments shall become effective June 1, 1962.

Dated: May 14, 1962.

STEWART L. UDALL,
Secretary of the Interior.

1. Section 260.69 is amended to read as follows:

§ 260.69 Payment of fees and charges.

Fees and charges for any inspection service shall be paid by the interested party making the application for such service, in accordance with the applicable provisions of the regulations in this part, and, if so required by the person in charge of the office of inspection serving the area where the services are to be performed, an advance of funds prior to rendering inspection service in an amount suitable to the Secretary, or a surety bond suitable to the Secretary, may be required as a guarantee of payment for the services rendered. All fees and charges for any inspection service, performed pursuant to the regulations in this part, shall be paid by check, draft, or money order made payable to the Bureau of Commercial Fisheries. Such check, draft, or money order shall be remitted to the appropriate Regional or Area office serving the geographical area in which the services are performed,

within ten (10) days from the date of billing, unless otherwise specified in a contract between the applicant and the Secretary, in which latter event the contract provisions shall apply.

2. Section 260.70 is amended to read as follows:

§ 260.70 Schedule of fees.

(a) Unless otherwise provided in a written agreement between the applicant and the Secretary, the fees to be charged and collected for any inspection service performed under the regulations in this part at the request of the United States, or any agency or instrumentality thereof, shall be in accordance with the applicable provisions of §§ 260.70 to 260.79.

(b) Unless otherwise provided in the regulations in this part, the fees to be charged and collected for any inspection service performed under the regulations in this part shall be based on the applicable rates specified in this section for the type of service performed.

(1) Continuous inspection.

Per hour
Regular time \$4.20
Overtime 5.00

Applicants shall be charged at an hourly rate of \$4.20 per hour for regular time and \$5 per hour for overtime in excess of 40 hours per week for services performed by inspectors assigned to plants operating under continuous inspection. Applicants shall be billed monthly at a minimum charge of 8 hours per working day plus overtime, when appropriate, for each inspector. A minimum yearly charge of 260 days will be made for each inspector permanently assigned to each plant.

(2) Lot inspection—officially and unofficially drawn samples.

For lot inspection services performed between the hours of 7:00 a.m. and 5 p.m. of any regular workday—\$6 per hour.

For lot inspection services performed between the hours of 5 p.m. and 7 a.m. of any regular workday—\$9 per hour.

For lot inspection services performed on Saturday, Sunday, and National legal holidays—\$9 per hour.

The minimum fee to be charged and collected for inspection of any lot of product shall be \$3.

(c) Fees to be charged and collected for lot inspection services furnished on an hourly basis shall be based on the actual time required to render such service including, but not limited to, the travel, sampling, and waiting time required of the inspector, or inspectors, in connection therewith, at the rate of \$6 per hour for each inspector, except as provided in paragraph (b) (2) of this section.

3. Section 260.71 is amended to read as follows:

§ 260.71 Inspection services performed on a resident basis.

Fees to be charged and collected for any inspection service, other than appeal inspection, on a resident basis shall be those provided in § 260.70 and shall include such items as listed in this section as are applicable. The fees to be charged for appeal inspections shall be as provided in § 260.74.

(a) A charge for per diem and travel costs incurred by any inspector whose services are required for relief purposes when the regular inspector is on annual, sick, or military leave: *Provided*, That, with regard to military leave, charges for per diem and travel costs incurred by a relief inspector shall not exceed 15 days per calendar year.

(b) A charge to cover the actual cost to the Bureau of Commercial Fisheries of the travel (including the cost of movement of household goods and dependents), and per diem with respect to each inspector who is transferred (other than for the convenience of the Bureau of Commercial Fisheries), from an official plant to the designated plant.

(c) A charge of \$6 per hour plus actual costs to the Bureau of Commercial Fisheries for per diem and travel costs incurred in rendering services not specifically covered in this section; such as, but not limited to, initial plant surveys.

4. Section 260.72 is amended to read as follows:

§ 260.72 Fees for inspection service performed under cooperative agreement.

The fees to be charged and collected for any inspection or similar service performed under cooperative agreement shall be those provided for by such agreement.

5. Section 260.73 is amended to read as follows:

§ 260.73 Disposition of fees for inspections made under cooperative agreement.

Fees for inspection under a cooperative agreement with any State or person shall be disposed of in accordance with the terms of such agreement. Such portion of the fees collected under a cooperative agreement as may be due the United States shall be remitted in accordance with § 260.69.

§ 260.75 [Deletion]

6. Section 260.75 is deleted.

7. Section 260.76 is amended to read as follows:

§ 260.76 Charges based on hourly rate not otherwise provided for in this part.

When the appropriate Regional or Area Director determines that any inspection or related service rendered is such that charges based upon the foregoing sections are clearly inapplicable, charges may be based on the time consumed by the inspector in performance of such inspection service at the rate of \$6 per hour.

8. Section 260.81 is added:

§ 260.81 Readjustment and increase in hourly rates of fees.

The hourly rates of fees to be charged for inspection services will be subject to review and reevaluation for possible readjustment not less than every 3 years: *Provided*, That, the hourly rates of fees to be charged for inspection services will be immediately reevaluated as to need for readjustment with each Federal pay act increase.

* * * * *

PROCESSOR ACCOUNTABLE FOR REMOVAL OF USDI SHIELDS FROM MIS-LABLED FISHERY PRODUCTS PACKAGES:

The Department of the Interior has announced a change in the regulations for United States standards for grades of processed fishery products by adding a new provision which requires accountability by the processor for the removal or stripping of official United States Department of the Interior (USDI) shields from packages of mislabeled fishery products. The change was published in the Federal Register of June 9, 1962.

The proposed change was first published in the February 24, 1962, Federal Register, and interested parties had until March 24, 1962, to submit written comments, suggestions, or objections. One comment was received and considered. Accordingly, a minor change has been adopted to clarify that part relating to the removal of labels bearing inspection marks.

The new procedure for removal of labels bearing inspection marks as published in the June 9 Federal Register follows:

Title 50—WILDLIFE AND FISHERIES

Chapter II—Bureau of Commercial Fisheries, Fish and Wildlife Service, Department of the Interior

SUBCHAPTER G—PROCESSED FISHERY PRODUCTS, PROCESSED PRODUCTS THEREOF, AND CERTAIN OTHER PROCESSED FOOD PRODUCTS

PART 260—INSPECTION AND CERTIFICATION

Approved Identification

On page 1771 of the FEDERAL REGISTER of February 24, 1962, there was published a notice and text of a proposed amendment to part 260 of Title 50, Code of Federal Regulations, by the addition of a new paragraph (e) to § 260.86.

The purpose of the addition of the new provision is to require accountability by the processor for the removal or stripping of official United States Department of the Interior (USDI) shields

from packages of mislabeled fishery products.

Interested persons were given until March 24, 1962, to submit written comments, suggestions, or objections to the proposed amendment. One comment was received and considered. Accordingly, a minor change has been adopted to further clarify § 260.86(e) relating to the removal of labels bearing inspection marks.

The proposed amendment is hereby adopted with the minor change and is set forth below. This amendment shall become effective 30 days after the date of publication of this notice in the FEDERAL REGISTER.

Dated: June 5, 1962.

STEWART L. UDALL,
Secretary of the Interior.

§ 260.86 Approved identification.

(e) *Removal of labels bearing inspection marks.* At the time a lot of fishery products is found to be mislabeled and the labels on the packages are not removed within ten (10) consecutive calendar days, the following procedure shall be applicable:

(1) The processor, under the supervision of the inspector, shall clearly and conspicuously mark all master cases in the lot by means of a "Rejected by USDI Inspector" stamp provided by the Department.

(2) The processor shall be held accountable to the Department for all mislabeled products until the products are properly labeled.

(3) Clearance for the release of the relabeled products shall be obtained by the processor from the inspector.



Department of State

**TRADE AGREEMENT CONCESSIONS
EFFECTIVE JULY 1, 1962:**

Appropriate international action was taken to bring into effect on July 1, 1962, United States schedules of tariff concessions resulting from recently completed negotiations with the European Economic Community and a number of individual countries, the Department of State announced.

Pursuant to the provisions of trade agreements legislation most of the concessions will become effective in 2 or 3 stages and in such cases the stage that became effective on July 1 was that provided for during the first stage.

Information was received to the effect that the concessions negotiated with the United States by Peru and Portugal were already in effect, and that those negotiated by Denmark, New Zealand, and Sweden would be put

into effect on July 1, 1962. It was understood that some other parties to these agreements would also put their concessions into effect on July 1 or shortly thereafter, and that the others will probably be put into effect some time during the fall of 1962 or by the beginning of 1963. Under all the agreements the United States has the right to withdraw its concessions in the event of unreasonable delay by the other parties to the agreements.

An analysis of the concessions exchanged in these interim bilateral agreements, except that with Haiti under which the United States would reduce the duty on vertivert oil from 5 percent to 3 percent ad valorem, was released by the Department of State on March 7, 1962 (State Department publication 7349 and supplement). All of the agreements except those with Haiti and Japan were proclaimed by Proclamation 3468 of April 30, 1962. As was indicated in the White House press release accompanying that Proclamation, it was anticipated that a supplementary Proclamation relating to agreements not included in the April 30 Proclamation would be issued. Moreover, the Proclamation of April 30, 1962, provides that the President shall formally notify the Secretary of the Treasury of the effective dates of the concessions in the United States schedules to these agreements.

The April 30 Proclamation also proclaimed compensatory agreements with the Benelux countries, Denmark, Germany, Italy, Japan, and the United Kingdom, and provided that the tariff concessions in the United States schedules to those agreements would become effective July 1, 1962, unless the President notified the Secretary of the Treasury of an earlier date.



White House

PRESIDENT PUTS INTO EFFECT RESULTS OF 1960-61 GATT NEGOTIATIONS:

A proclamation giving effect to the United States tariff concessions and other results from the 1960-61 General Agreement on Tariffs and Trade negotiations was issued by the President on April 30, 1962. The proclamation was published in the May 3, 1962, Federal Register. The results of the GATT negotiations were originally announced on March 7, 1962.

The concessions resulted from reciprocal negotiations with the European Economic Community, Austria, Canada, Denmark, Finland, Israel, New Zealand, Norway, Pakistan, Peru, Portugal, Sweden, Switzerland, and the United Kingdom, and from compensatory negotiations with the Benelux countries, Denmark, Germany, Italy, Sweden, Japan, and the United Kingdom.

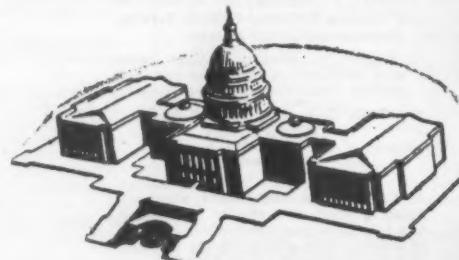
The reciprocal agreements provide that the concessions in the United States schedules will take effect 30 days after the United States formally notifies the countries with which they were negotiated, and under the proclamation, the effective date will be published in the Federal Register.

According to the proclamation, it is expected that the concessions in the agreements will become effective on July 1. It is also expected that another proclamation will be issued in order to make effective on the same date concessions in agreements with certain other countries. The compensatory concessions will become effective on July 1, 1962, unless the President decides on an earlier date. It is reported that in accordance with trade agreement legislation, most of the reductions in United States import duties will be made in two stages, the second stage becoming effective after the first stage has been in effect for one year.



Eighty-Seventh Congress (Second Session)

Public bills and resolutions which may directly or indirectly affect the fisheries and allied industries are reported upon. Intro-



duction, referral to committees, pertinent legislative actions by the House and Senate,

as well as signature into law or other final disposition are covered.

AMERICAN SAMOA INCLUDED IN CERTAIN LAWS: S. 2440 (Long) introduced in the Senate on August 18, 1961, to extend the application of certain laws to American Samoa; referred to the Committee on Interior and Insular Affairs. Companion bills H.R. 10049 (Aspin) and H.R. 10062 (O'Brien) were introduced in the House on February 5, 1962; both referred to the Committee on Interior and Insular Affairs. Bills would make available to American Samoa the technical assistance, as needed, of the various Federal departments and agencies and to extend to American Samoa several Federal assistance programs presently available in other parts of the United States and its territories.

The House Committee on Interior and Insular Affairs on March 28, 1962, reported with amendment (H. Rep. No. 1536) H.R. 10062. The House on April 2, 1962, considered and passed, under suspension of the rules, H.R. 10062 amended.

The Senate Committee on Interior and Insular Affairs on May 9, 1962, reported (S. Rep. 1478) favorably on H.R. 10062 with an amendment in the nature of a substitute, and recommended that the bill, as amended, do pass. The bill as amended would authorize the Secretary of the Interior to request Federal departments, corporations, or agencies to extend, without reimbursement, scientific and technical assistance to promote the welfare of the territory. Examples of the sorts of technical assistance which may be called for from time to time include revision of Samoa's tax structure, education, agricultural and fisheries production and marketing, harbor improvement, public utilities, and land planning and zoning. A limitation of an aggregate of \$150,000 in any one fiscal year is provided. Section 2 of the bill extends to American Samoa the provisions of the Vocational Education Act of 1946, as amended. That act authorizes the annual appropriation of specified sums of money for vocational education in five specified fields (agriculture, home economics, trades and industry, distributive occupations, and fishing trades). The money is apportioned among the various States, Puerto Rico, the District of Columbia, and Guam. The funds must be matched 100 percent.

The Senate on May 17, 1962, passed, with amendment, H.R. 10062. Bill sent back to the House for concurrence on Senate amendment.

EXEMPT TRANSPORTATION OF AGRICULTURAL AND FISHERY PRODUCTS: The House Committee on Interstate and Foreign Commerce began hearings June 26, 1962, on H.R. 11583, to exempt certain carriers from minimum rate regulation in the transportation of bulk commodities, agricultural and fishery products, and passengers, and for other purposes.

The Senate Committee on Commerce held hearings June 27-29, 1962, on S. 3243, a companion bill to H.R. 11583.

FISHERIES PROGRAM: Senator Benjamin Smith of Massachusetts (Congressional Record, May 24, 1962, pp. 8496-8505) presented to the Senate on May 24 a program for the Nation's fisheries. In his statement to the Senate, the Massachusetts Senator pointed out the depressed condition of the domestic fishing industry, the catch of fish by the leading nations of the world, how the fisheries of other nations have progressed fur-

ther than in the United States, and the government aid to the fisheries of other nations. The statement continues, in part: The American fisheries are important to the economic development of the country, but there is a desperate need for modernization which cannot take place without Federal aid. The Soviets with their new and modern fishing fleet have recently placed ahead of the United States in world fishery production. The basic problem pervading every part of our fisheries is backwardness of technology, which is most prevalent in the following areas: (1) finding and harvesting the fish; (2) control of quality; (3) marketing; and (4) processing. The Senator states: "I think Congress should pass a program that will help save the industry from further decline and enable it to compete with modern producers. In addition, the Government should take steps to make our fisheries an effective weapon in our battle against hunger in the underdeveloped nations of the world..." Senator Smith proposes the following 7-point program: (1) Overhaul of the Vessel Subsidy Act to allow greater Government participation in subsidies to boatowners and to make a great segment of the fishing industry eligible for assistance; (2) We should provide Federal loans to fish processors to help them modernize their plants; (3) We should expand research into the finding, catching, processing, and marketing of fish by enlarging present research programs, and providing new equipment for the Bureau of Commercial Fisheries; (4) We should strengthen state commercial fisheries programs by a system of Federal matching grants; (5) We should construct a modern stern-chute factory-trawler for processing fish at sea; (6) We should obtain approval of fish protein for domestic consumption by the Food and Drug Administration; and (7) We should construct a pilot plant for manufacture of fish protein on land and sea, aboard ships. Senators Talmadge, Saltonstall, Young, Morse, Long, Robertson, Holland, Douglas, and Pell also commented on the nation's fisheries and supported Senator Smith's statement.

FISH PROTEIN CONCENTRATE: On June 23, 1962, Senator Douglas was given unanimous consent to have printed in the Congressional Record (June 23, 1962, pp. 10648-10649) the correspondence between his office, the Department of the Interior, and the Food and Drug Administration on the subject of postponing the June 18 public hearings on fish protein concentrate. The Senator stated "I am very anxious that this product's merits be thoroughly explored before the American public, and I look forward to reading the final report from the National Academy of Sciences on the quality of the product...."

INTERIOR APPROPRIATIONS FY 1963: The Senate on May 17, 1962, passed over H.R. 10802, making appropriations for the Department of the Interior and related agencies for the fiscal year ending June 30, 1962. Included are funds for the Fish and Wildlife Service and its two bureaus--Commercial Fisheries and Sport Fisheries and Wildlife.

The Senate, June 12, 1962, passed, with amendments, H.R. 10802. The amended bill has major increases of \$811,500 for the Bureau of Commercial Fisheries and \$4,811,800 for the Bureau of Sport Fisheries and Wildlife. The Senate insisted on its amendments, asked for a conference with the House, and appointed as conferees Senators Hayden, Russell, McClellan, Byrd (West Virginia), Bible, Mundt, Young (North Dakota), and Dworkin.

MEDICAL CARE FOR VESSEL PERSONNEL: The Senate Committee on Commerce, in executive session, on May 21, 1962, ordered favorably reported S. 367,

providing medical care for persons engaged on board vessels, amended.

The Senate on June 5, 1962, received the report (S. Rept. No. 1541) from the Committee on Commerce on S. 367 with amendments.

S. Rept. 1541, Medical Care--Fishing Boat Owners (June 5, 1962, Report of the Committee on Commerce, United States Senate, 87th Congress, 2nd Session, to accompany S. 367), 16 pp., printed. Committee reported bill favorably, with amendments, and recommended passage. Contains purpose of the bill, legislative history, cost, committee amendment, and agencies' comments. The purpose of the committee amendment is to include the owner-operators of fishing boats (which are registered, licensed, or enrolled under the laws of the United States) as recipients of Public Health Service hospital and medical care. Also made eligible for such care by the committee amendment would be persons employed or self-employed as fishermen on board commercial fishing vessels, even in cases where their employment may not be directly related to the care, preservation, and navigation of the vessel. It would restore to self-employed U. S. fishermen eligibility for medical care in hospitals, out-patient clinics, and other medical facilities of the Public Health Service in the event of illness or injury incurred while engaged in their occupation. The amendment, however, would exclude passengers, guests, or others on board vessels who are not regular members of the crew. The amendment is based on the suggestions offered at the committee hearings by witnesses from the Department of Health, Education, and Welfare, the Department of the Interior, and by other witnesses.

The Senate, on June 8, 1962, passed S. 367 as amended. The House on June 11, 1962, received the bill passed by the Senate, and referred it to the Committee on Interstate and Foreign Commerce.

NATIONAL FISHERIES CENTER AND AQUARIUM: The Subcommittee on Public Buildings and Grounds of the Senate Committee on Public Works held hearings on June 15, 1962, on H.R. 8181, to authorize the Secretary of the Interior to construct a National Fisheries Center and Aquarium in the District of Columbia.

NEW ENGLAND FISHERIES: Congressman Clem Miller of California had printed in the Appendix (p. A3786) of the May 22, 1962, Congressional Record, an article titled "Asleep in the Deep" which describes the failing New England commercial fishing industry.

OYSTER BROOD STOCK PURCHASES: The Merchant Marine and Fisheries Subcommittee of the Senate Committee on Commerce met on June 25, 1962, on H.R. 7336, to promote the production of oysters by propagation of disease-resistant strains and for other purposes.

PACIFIC FISHERIES: Congressman Miller, of California, had printed in the Appendix (p. A3791) of the May 22, 1962, Congressional Record, a comprehensive plan for Pacific Coast fisheries submitted to Congress by the Alaska Fishermen's Union. In part, the statement points out: "... To accomplish basic necessities of the American fishing fleet and a more balanced position in our economic structure for U. S. fishermen, requires consideration first of the need to stabilize fair-trade practices in the sale and marketing of their products. It follows that our U. S. marketing and processing industry will likewise become stable in their

trade, with conditions improved for the fishermen who supply them with products of the sea..."

PACIFIC MARINE FISHERIES COMPACT: S. 3431 (Bartlett and others) introduced in the Senate on June 18, 1962, to consent to the amendment of the Pacific Marine Fisheries Compact and to the participation of certain additional States in such compact in accordance with the terms of such amendment; referred to the Committee on Commerce. The change consists of an addition to the existing compact which provides, in part: "The States of Alaska or Hawaii, or any State having rivers or streams tributary to the Pacific Ocean may become a contracting State by enactment of the Pacific Marine Fisheries Compact." Upon congressional ratification of the compact, Alaska, Hawaii, and Idaho will be eligible for membership. California, Oregon, and Washington are now members of the compact and of the Pacific Marine Fisheries Commission created by the compact. A companion bill, H.R. 12205 (Rivers), was introduced in the House on June 19, 1962; referred to the Committee on Merchant Marine and Fisheries.

SALTONSTALL-KENNEDY ACT: The House on June 5 and the Senate on June 6, 1962, received a letter from the Secretary of the Interior, transmitting, pursuant to law, the annual report on the operations of the Bureau of Commercial Fisheries under the Saltonstall-Kennedy Act, for the fiscal year 1960; referred to the Committee on Commerce.

SCIENCE AND TECHNOLOGY COMMISSION: Create a Commission on Science and Technology (Hearing before the Committee on Government Operations, United States Senate, 87th Congress, 2nd Session, Part I), 101 pp., printed. Contains hearing held May 10, 1962, on S. 2771 to provide for the establishment of a Commission on Science and Technology; excerpts from various scientific magazines; and testimony given by Congressmen and industry personnel.

SCIENCE AND TECHNOLOGY OFFICE: On June 8, 1962, by order of the President, Reorganization Plan No. 2 of 1962 went into effect (published in the Federal Register, June 8, 1962). It establishes the Office of Science and Technology as a new unit within the Executive Office of the President; places at its head a Director appointed by the President and by the advice and consent of the Senate and provides for a Deputy Director similarly appointed; and transfers to the Director certain functions of the National Science Foundation. The principal function of the new Office is to coordinate and evaluate the research and development programs of the various Federal Government agencies in order to eliminate duplication. The Director of the new Office will be conferred certain functions now performed by the National Science Foundation in order to enable the Director to assist and advise the President in achieving coordinated Federal policies of the promotion of basic research and education in the sciences and the authority to evaluate scientific research programs undertaken by agencies of the Federal Government. Also, the plan provides for certain reorganizations with the Foundation to strengthen the position of Director in that agency.

SHELLFISH PROCESSING EXEMPTION FROM MINIMUM WAGE: Exemption to Shellfish Industry Under Fair Labor Standards Act (Hearings before a Special Subcommittee on Labor of the Committee on Education and Labor, House of Representatives, 87th Congress, 2nd Session on H.R. 8927 and H.R. 8932), 57 pp., printed. Contains the hearing held February 16, 1962 on H.R.

8927 and H.R. 8932, to amend the Fair Labor Standards Act of 1938 to continue in effect the exemptions for shellfish processing as contained in such act prior to the Fair Labor Standards Amendments of 1961. Statements and letters were presented by Federal officials and industry.

TARIFF CLASSIFICATION RESTATEMENT IN TARIFF ACT OF 1930: The President on May 24, 1962, signed H.R. 10607, to amend the Tariff Act of 1930 and certain related laws to provide for the restatement of the tariff classification provisions, and for other purposes (P. L. 87-456). It will accomplish the following: (1) Establish schedules of tariff classification which will be logical in arrangement and terminology and adapted to the changes which have occurred since 1930 in the character of importance of articles produced in and imported into the United States and in the markets in which they are sold. (2) Eliminate anomalies and illogical results in the classification articles. (3) Simplify the determination and application of tariff classifications.

TRADE EXPANSION ACT OF 1962: Trade Expansion Act of 1962 (Hearings before the Committee on Ways and Means, House of Representatives, 87th Congress, 2nd Session), printed in 6 parts, Part I, 670 pp.; Part II, 766 pp.; Part III, 774 pp.; Part IV, 742 pp.; Part V, 774 pp.; and Part VI, 730 pp. Contains hearings held March 12, 13, 14, 16, 19, 20, 21, 22, 23, 26, 27, 30, April 2, 3, 4, 5, 6, 9, 10, and 11, 1962, on H.R. 9900, to promote the general welfare, foreign policy, and security of the United States through international trade agreements and through adjustment assistance to domestic industry, agriculture, and labor, and for other purposes; H. Doc. No. 314, the Reciprocal Trade Agreements Program, a message from the President of the United States; a section-by-section analysis as prepared by the executive branch; and testimony given by Congressmen, personnel of various Federal and State agencies and industry people.

H.R. 11970 (Mills), introduced in the House on June 4, 1962, to promote the general welfare, foreign policy, and security of the United States through international trade agreements and through adjustment assistance to domestic industry, agriculture, and labor, and for other purposes. Introduced as directed by the House Committee on Ways and Means as a clean bill in lieu of H.R. 9900. The Committee met in executive session on June 4, 1962, and ordered H.R. 11970 reported favorably to the House. New bill grants the President nearly all of the tariff-making authority in the original bill, H.R. 9900. Period covered is June 30, 1962-July 1, 1967. New bill would permit tariff reduction on canned foods and foods of agricultural origin to zero and the reduction of tariffs on all types of fishery products (including canned) by as much as 50 percent. In place of the so-called "peril point," new pre-negotiation safeguards would be established for determining the products on which U. S. tariffs should be reduced. Also, the "escape clause" provision of existing law, under which tariff protection may be sought by those suffering injury from imports, would be repealed. In its place would be created a new program of adjustment assistance to industries, firms, and workers injured by imports as a result of tariff concessions. In helping firms and workers adjust to import competition, tariff relief would be authorized on a temporary basis as one form of assistance. Bill would require President to take all steps in his power to end unjustifiable foreign import restrictions, such as variable import fees, which impair the value of

tariff commitments made to the United States. In reciprocal negotiations, the bill would authorize the President to reduce tariff rates existing on July 1, 1962, by as much as 50 percent, and to eliminate all tariffs of no more than 5 percent ad valorem or its equivalent. It would seem that fishery products would fall under either of these provisions. Other provisions for tariff reduction are also included. These refer to negotiations with the Common Market on agricultural products and on tropical agricultural and forestry products. Tariff reductions would be made effective in five equal annual stages, except for reductions and eliminations of duties on tropical products.

The House on June 12, 1962, received the report (H. Rpt. 1818) from the Committee on Ways and Means on H.R. 11970, with amendment. Referred to the Committee of the Whole House on the State of the Union.

H. Rpt. 1818, Trade Expansion Act of 1962 (Report of the Committee on Ways and Means, House of Representatives, 87th Congress, 2nd Session, to accompany H.R. 11970), 107 pp., printed. The Committee recommends the bill favorably and recommends passage with amendments. The purposes of the bill are: (1) To extend the authority of the President to enter into foreign trade agreements from July 1, 1962, through June 30, 1967; (2) To authorize the President to proclaim, subject to certain conditions and limitations, such modification or continuance of any existing duty or other import restriction, such continuance of existing duty-free or excise treatment, or such additional import restrictions as he determines to be required or appropriate to carry out any such trade agreement; and (3) To authorize, in appropriate circumstances, adjustment assistance to industries, firms, and workers who may be seriously injured, or threatened with serious injury, by increased imports resulting from trade agreement concessions. The report also contains a general statement; principal features of the bill; reasons for the bill; general description of the bill; technical explanation of the bill; and various statements of Congressmen.

H.R. 12300 (Dent) and H.R. 12302 (Lennon) introduced in the House on June 26, 1962; both referred to the Committee on Ways and Means.

The Committee on Rules on June 26, 1962, introduced H. Res. 712 for consideration of H.R. 11970. The Committee on the same day reported (H. Rpt. No. 1924) on H. Res. 712, for consideration of H.R. 11970, a bill to promote the general welfare, foreign policy, and security of the United States through international trade agreements and through adjustment assistance to domestic industry, agriculture, and labor, and for other purposes; without amendment. The resolution provides that all points of order against H.R. 11970 are waived; after general debate, confined to the bill and not to exceed 8 hours, the bill shall be considered as having been read for amendment; amendments can be offered only by direction of Committee on Ways and Means and are not subject to amendment; and only one motion to recommit will be allowed.

TRANSPORTATION ACT OF 1962: The Senate Committee on Commerce held hearings June 27-29, 1962, on S. 3242, to provide for strengthening and improving the national transportation system, and for other purposes.

The House Committee on Interstate and Foreign Commerce began hearings June 26, 1962, on H.R. 11584, a companion bill to S. 3242.

TUNA CONVENTION ACT: The Senate Subcommittee on Merchant Marine and Fisheries of the Committee on Commerce concluded hearings on May 24, 1962, on S. 2568, to extend the regulatory authority of the Federal and State agencies concerned under the terms of the Convention for the establishment of an Inter-American Tropical Tuna Commission, signed at Washington, May 31, 1948, and for other purposes. Testimony was given by various agencies and industry personnel.

VESSEL COLLISION LIABILITY: The Senate Committee on Commerce met in executive session on May 23, 1962, and ordered reported S. 2313, to unify apportionment of liability in cases of collision between vessels, and related casualties, with amendment. Establishes provisions under which compensation for damages shall be settled after a collision between vessels, in whatever waters the collision takes place.

The Senate on June 15, 1962, received report (S. Rept. 1603) from the Committee on Commerce on S. 2313 with amendments.

Liability in Collisions Between Vessels (Hearings before the Merchant Marine and Fisheries Subcommittee of the Committee on Commerce, United States Senate, 87th Congress, 2nd Session on S. 2313 to unify apportionment of liability in cases of collision between vessels and related casualties and S. 2314 to limit the liability of shipowners, and for other purposes, March 1 and 2, 1962), 270 pp., printed. Contains statements given at the hearings by Congressmen, Federal officials, and industry people; and the reports from Federal agencies.

VESSEL OWNERS LIABILITY: H.R. 14840 (Ashley) introduced in the House on May 22, 1962, to limit the liability of shipowners, and for other purposes; referred to the Committee on Merchant Marine and Fisheries. Similar to other bills previously introduced.

On May 23, 1962, the Senate Committee on Commerce, in executive session, ordered reported with amendment S. 2314, to limit the liability of shipowners, and for other purposes. The owner of a vessel may limit his liability, and the liability of his vessel, with respect to claims arising from any of several occur-

rences, unless the occurrence giving rise to the claim resulted from actual fault or privity of the owner. Would include all seagoing vessels and all vessels used on lakes or rivers or in inland navigation, including pleasure yachts, tugs, towboats, towing vessels, tank vessels, fishing vessels, or their tenders, canal boats, scows, car floats, barges, lighters, and all nondescript self-propelled and nonself-propelled vessels.

The Committee on Commerce reported (S. Rept. 1602) on June 15, 1962, to the Senate S. 2314.

WATER POLLUTION CONTROL ADMINISTRATION: H.R. 11994 (Blatnik) introduced in the House on June 5, 1962, to amend the Federal Water Pollution Control Act by creating a Federal Water Pollution Control Administration and for other purposes; referred to the Committee on Public Works.

H.R. 12222 (Giaimo) introduced in House June 20, 1962, to amend the Federal Water Pollution Control Act by creating a Federal Water Pollution Control Administration and for other purposes; referred to the Committee on Public Works. Identical to H.R. 11994 introduced in the House on June 5, 1962.

WATER RESOURCES: Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources (Prepared under the direction of the President's Water Resources Council, together with a statement by Senator Clinton P. Anderson of New Mexico), Senate Doc. 97, 15 pp., printed under the authority of S. Res. 342, May 29, 1962. It contains the agreement between the Secretary of the Army, the Secretary of Health, Education, and Welfare, and the Secretary of the Interior, which establishes the Executive policies, standards, and procedures for uniform application in the formulation, evaluation, and review of comprehensive river basin plans and individual project plans for use and development of water and related land resources. The six main points in the agreement are: (1) purpose and scope, (2) objectives of planning, (3) planning policies and procedures, (4) review of comprehensive plans and project proposals, (5) standards for formulation and evaluation of plans, and (6) relation to cost allocation, reimbursement and cost-sharing policies, standards, and procedures.



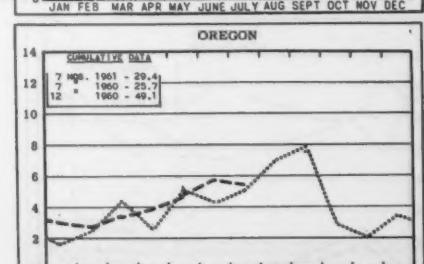
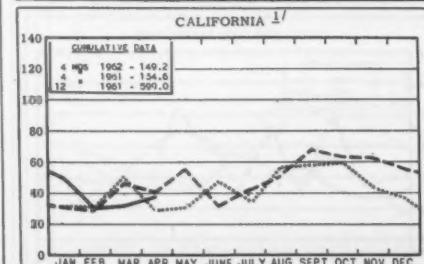
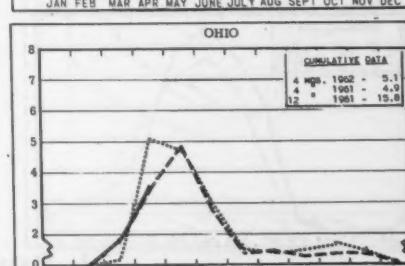
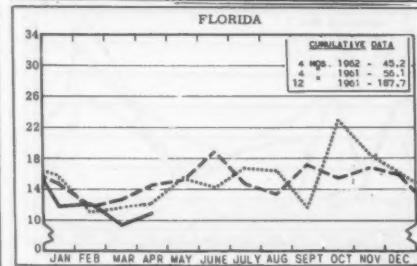
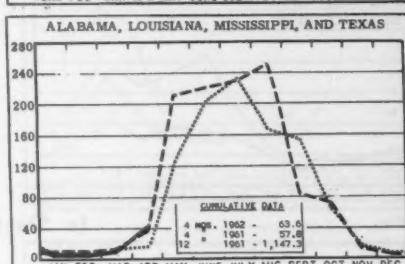
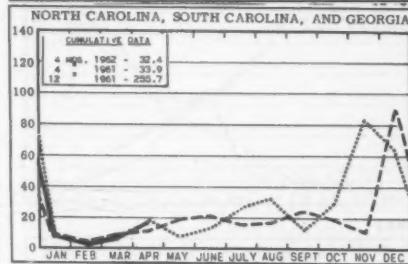
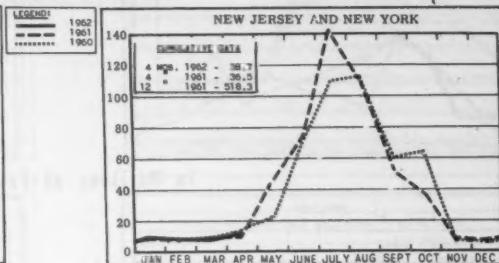
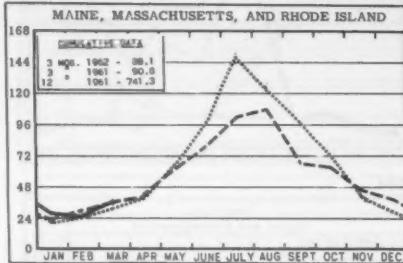
TRANSPLANTED GULF OF CALIFORNIA FISH IN SALTON SEA NOW ABUNDANT

Salton Sea in 1961 was reported having an abundant stock of sargo, a perch-like ocean fish transplanted from the Gulf of California by the California Department of Fish and Game. Gillnet samples early in 1961 showed that sargo averaging $\frac{3}{4}$ pound but going to 2 pounds were abundant in all areas of the Sea. And every one of the millions of sargo in Salton Sea now is a descendant of a total of only 65 transplanted there in 1951. (Outdoor California, April 1961.)

FISHERY INDICATORS

CHART I - FISHERY LANDINGS for SELECTED STATES

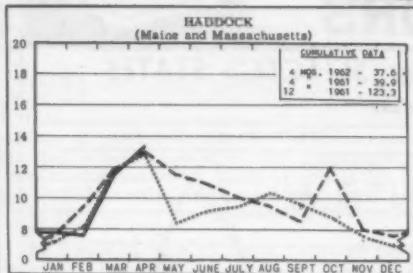
In Millions of Pounds



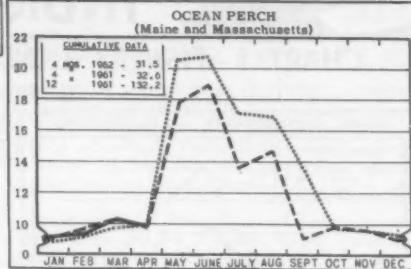
1/ONLY PARTIAL--INCLUDING PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

CHART 2 - LANDINGS for SELECTED FISHERIES

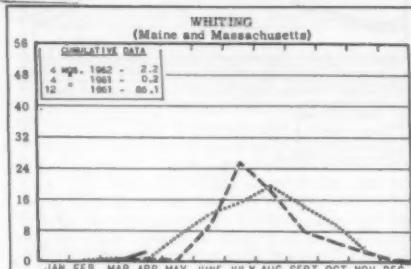
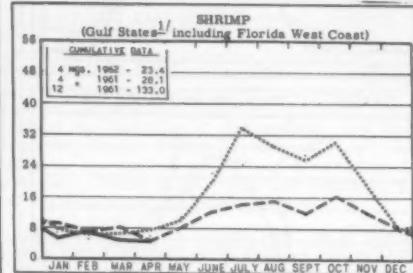
In Millions of Pounds



LEGEND:
— 1962
- - - 1961
***** 1960

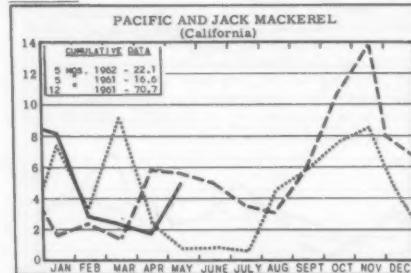
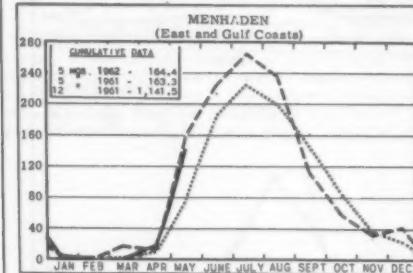


In Millions of Pounds



^{1/}LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

In Thousands of Tons



In Thousands of Tons

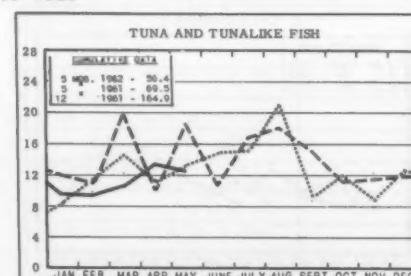
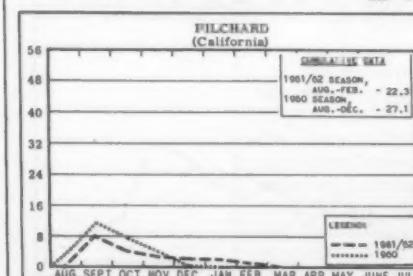
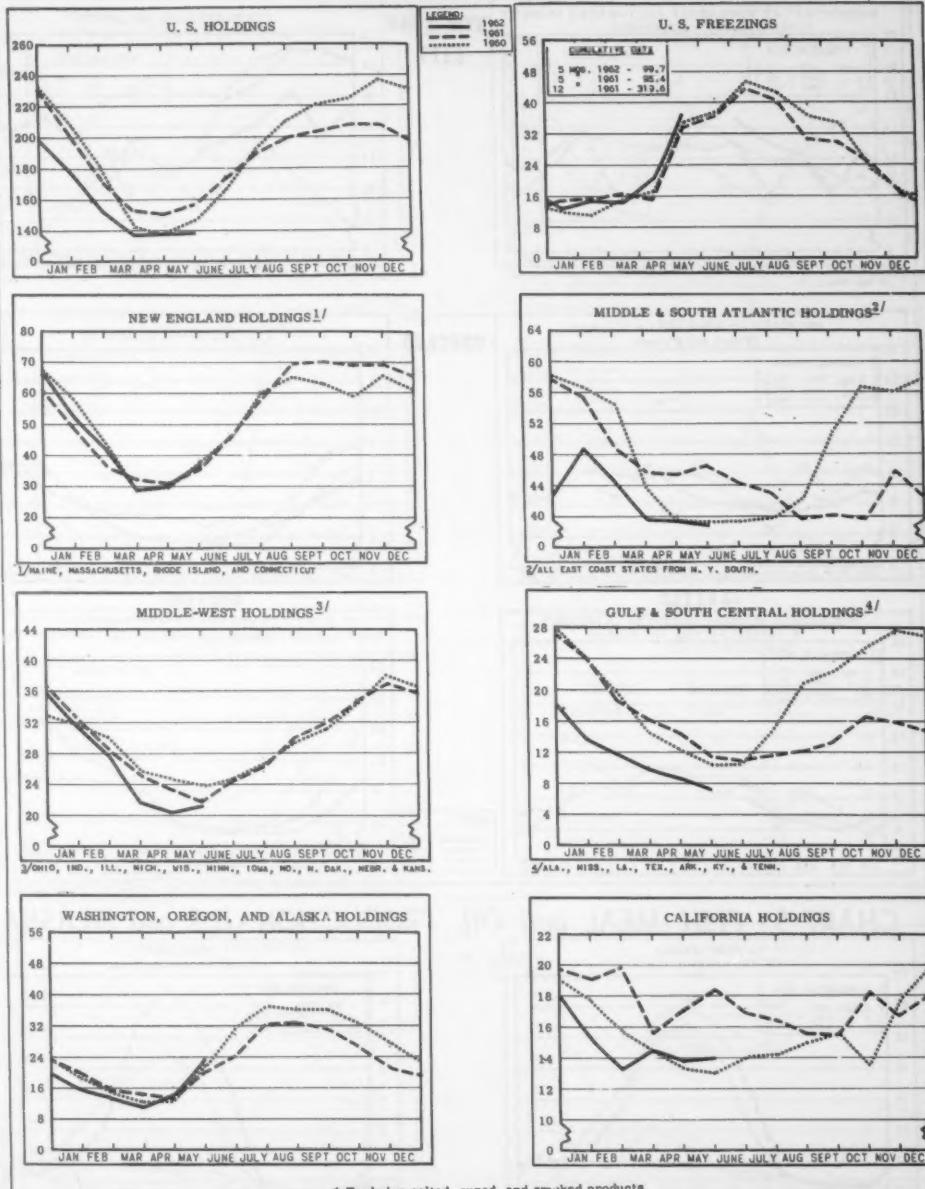


CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds



* Excludes salted, cured, and smoked products.

CHART 4 - RECEIPTS and COLD-STORAGE HOLDINGS of FISHERY PRODUCTS at PRINCIPAL DISTRIBUTION CENTERS

In Millions of Pounds

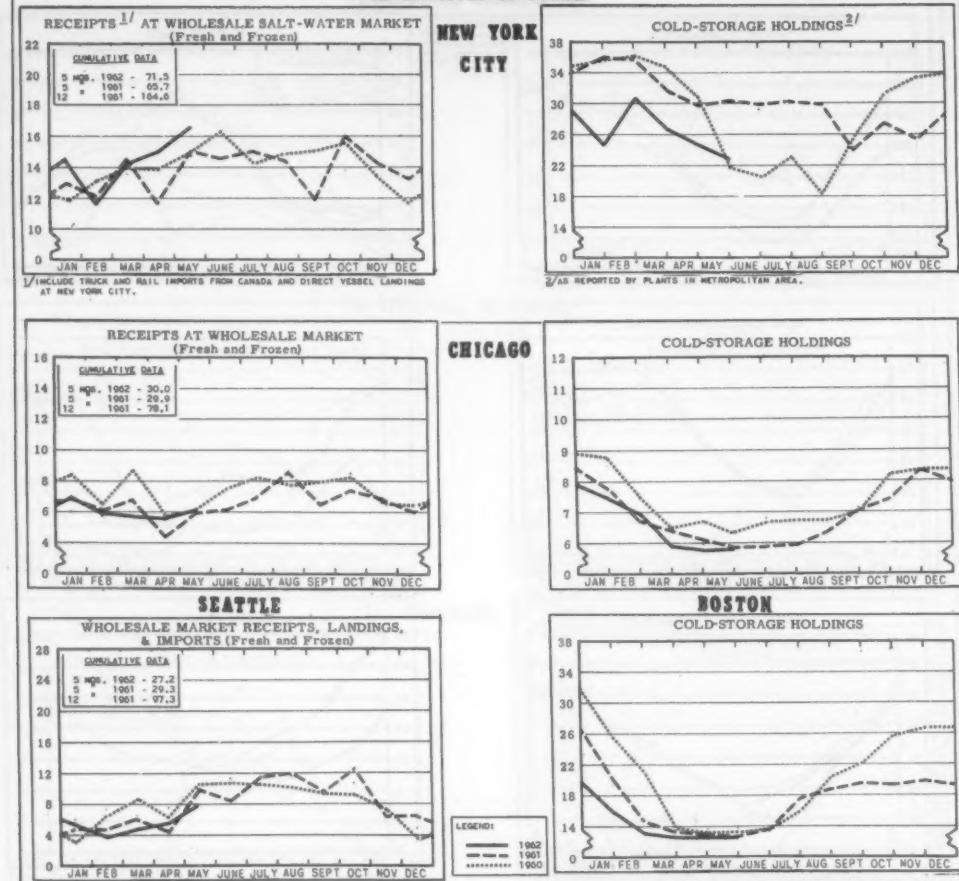


CHART 5 - FISH MEAL and OIL PRODUCTION - U.S. and ALASKA

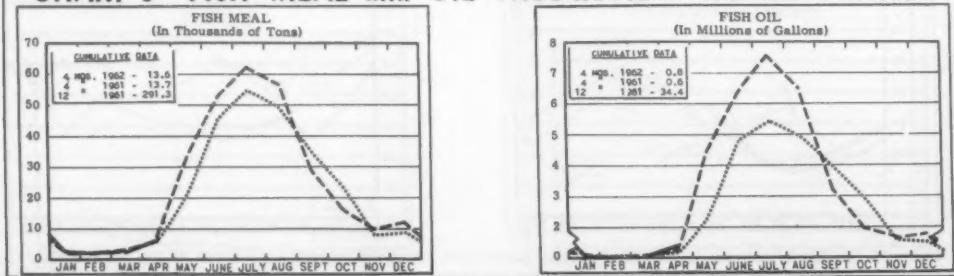
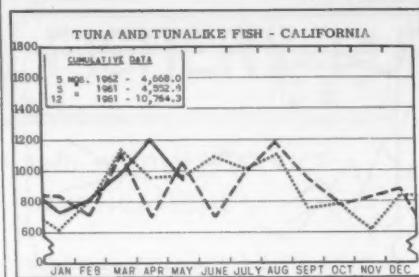
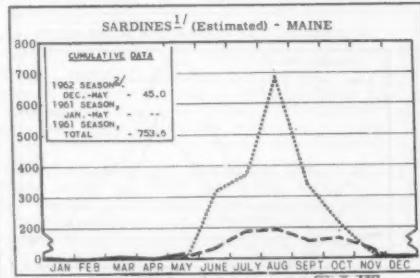
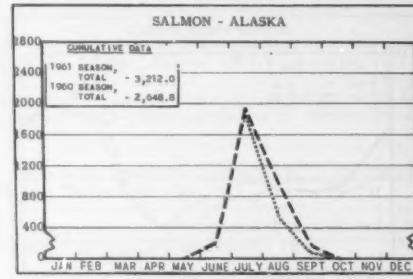
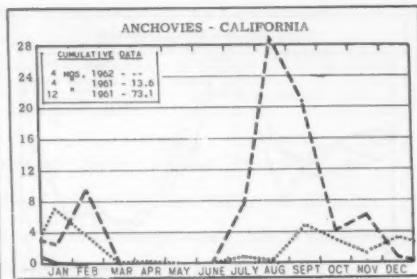
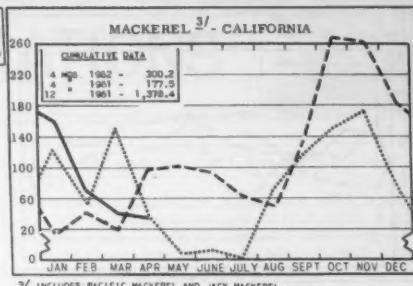


CHART 6 - CANNED PACKS of SELECTED FISHERY PRODUCTS

In Thousands of Standard Cases

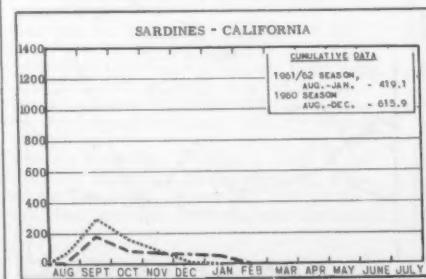


LEGEND:
 — 1962
 - - 1961
 1960



^{1/} INCLUDING SEA HERRING. ^{2/} THE 1962 SEASON STARTED DEC. 2, 1961.

Variety	No. Cans	Designation	Net Wgt.
SARDINES.....	100	½ drawn	3½ oz.
SHRIMP.....	48	--	5 oz.
TUNA.....	48	# ½ tuna	6 & 7 oz.
PILCHARDS...	48	# 1 oval	15 oz.
SALMON.....	48	1-lb. tall	16 oz.
ANCHOVIES...	48	½-lb.	8 oz.



LEGEND:
 - - 1961/62
 1960/61

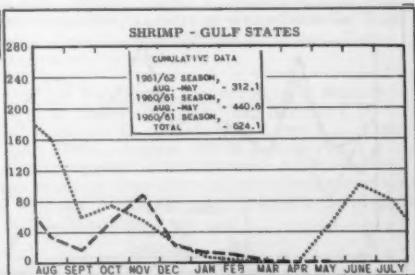
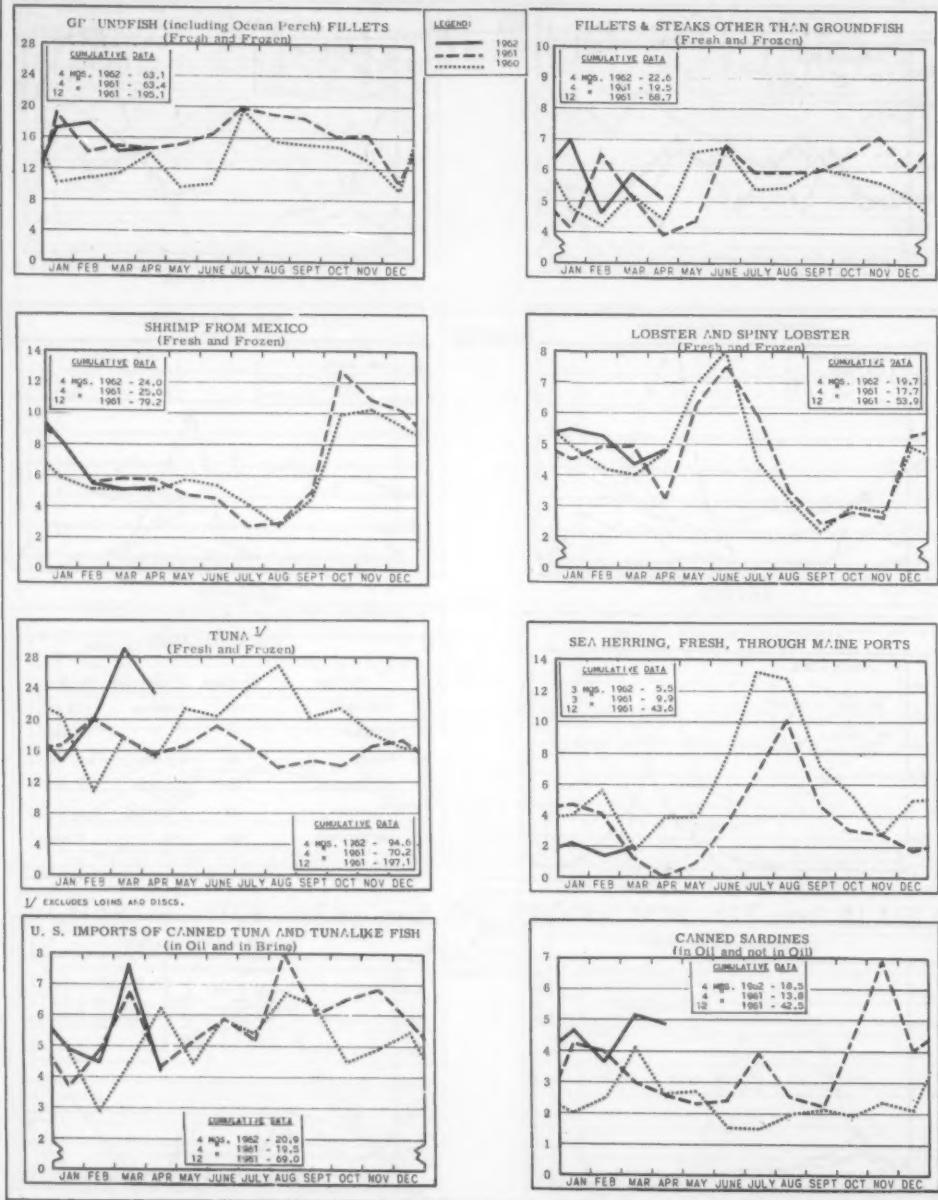


CHART 7 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds





RECENT FISHERY PUBLICATIONS

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE OFFICE OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES.
FL - FISHERY LEAFLETS.
MLN - REPRINTS OF REPORTS ON FOREIGN FISHERIES.
SEP - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
SL - BRANCH OF STATISTICS LIST OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
SSR - FISH, SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number	Title
CFS-2844	- Massachusetts Landings, December 1961, 5 pp.
CFS-2848	- New Jersey Landings, 1961, Annual Summary, 9 pp.
CFS-2850	- New York Landings, 1961, Annual Summary, 12 pp.
CFS-2855	- North Carolina Landings, February 1962, 4 pp.
CFS-2856	- Maine Landings, 1961, Annual Summary, by Months, 6 pp.
CFS-2857	- Maine Landings, 1961, Annual Summary, by County, Gear and Subarea, 17 pp.
CFS-2860	- Texas Landings, January 1962, 3 pp.
CFS-2862	- Canned Fishery Products, 1961, Annual Summary, 16 pp.
CFS-2864	- Maryland Landings, 1961, Annual Summary, 9 pp.
CFS-2866	- California Landings, December 1961, 4 pp.
CFS-2867	- Maine Landings, February 1962, 4 pp.
CFS-2868	- New Jersey Landings, February 1962, 3 pp.
CFS-2869	- Florida Landings, February 1962, 8 pp.
CFS-2870	- Frozen Fish Report, March 1962, 8 pp.
CFS-2871	- Virginia Landings, February 1962, 3 pp.
CFS-2872	- Maryland Landings, January 1962, 3 pp.
CFS-2873	- Rhode Island Landings, 1961, Annual Summary, 8 pp.
CFS-2874	- Louisiana Landings, January 1962, 2 pp.
CFS-2875	- Rhode Island Landings, January 1962, 3 pp.
CFS-2876	- Mississippi Landings, February 1962, 3 pp.
CFS-2879	- Michigan Landings, February 1962, 2 pp.
CFS-2880	- Wisconsin Landings, February 1962, 2 pp.
CFS-2881	- Fish Sticks and Portions, January-March 1962, 2 pp.
CFS-2882	- Alabama Landings, February 1962, 3 pp.
CFS-2883	- New York Landings, February 1962, 4 pp.
CFS-2884	- Shrimp Landings, December 1961, 6 pp.
CFS-2885	- Fish Meal and Oil, 1961, Annual Summary, 4 pp.

CFS-2886 - Florida Landings, 1961, Annual Summary, 13 pp.
 CFS-2887 - Louisiana Landings, February 1962, 2 pp.
 CFS-2888 - North Carolina Landings, March 1962, 4 pp.
 CFS-2889 - California Landings, January 1962, 4 pp.
 CFS-2891 - South Carolina Landings, March 1962, 2 pp.
 CFS-2895 - Rhode Island Landings, February 1962, 3 pp.
 CFS-2896 - Wisconsin Landings, March 1962, 2 pp.
 CFS-2897 - Florida Landings, March 1962, 8 pp.

FL-254 (Revised) - List of Fishery Associations in the United States, 13 pp., August 1961.

FL-292 (Revised) - List of Fishery Cooperatives in the United States, 1960-1961, by Leslie D. McMullin, 18 pp., August 1961.

FL-522 - Separates from the Commercial Fisheries Review, 7 pp., September 1961.

FL-530 - Construction of a Widmark-Flask Shaker, by D. J. Bond, 2 pp., illus., December 1961.

FL-531 - Food Fishes with Fins and Scales, by Isaac Ginsburg, 7 pp., December 1961.

SL-151 (Revised) - Firms Manufacturing, 1961, Marine Animal Scrap, Meal, Oil, Solubles and Homogenized Condensed Fish.

Sep. No. 650 - Fishery Tariff Concessions in the 1960-61 GATT Negotiations.

Sep. No. 651 - Construction of a Fish Weir.

SSR-Fish. No. 376 - Methods For Lipid Analysis, an Annotated Bibliography, by Alvin L. Jensen, 78 pp., processed, June 1961.

SSR-Fish. No. 386 - Oceanographic Observations Made During a Cooperative Survey of Albacore (*Thunnus germo*) off the North American West Coast in 1959, by Joseph J. Graham and William L. Craig, 35 pp., illus., processed, August 1961.

SSR-Fish. No. 390 - Seasonal Occurrence of Marine Fishes in Four Shore Habitats Near Beaufort, N. C., 1957-60, by Marlin E. Tagatz and Donnie L. Dudley, 21 pp., illus., August 1961. A report on a 3-year seining program which was conducted to determine monthly frequency of occurrence and size range of salt and brackish water fishes in the inshore waters of the Beaufort area.

SSR-Fish. No. 396 - Oceanographic and Biological Data, Hawaiian Waters, January-October 1959, by Kenneth Sherman and Robert P. Brown, 75 pp., illus., processed, December 1961.

Exempt Trucking of Fresh and Frozen Fish and Shellfish in Interstate Commerce, by John D. Abrahamson and Carl P. Hoffman, Jr., Circular 133, 60 pp., illus., November 1961. Covers a study made because of the need for facts necessary to solve many transportation problems of vital importance to the fishing industry and to give a clearer picture of the operations of exempt and regulated carriers in relation to fishery products. An "exempt" truck is one permitted to operate legally without economic regulation by the Interstate Commerce Commission (ICC). Some trucks operate on an "exempt" basis only part of the year. Such exemption was provided in 1935 when a law placed trucking operations under the jurisdiction of the Interstate Commerce Commission. The law specified various products which were exempt from regulation by ICC. These exemptions were based fundamentally upon the perishability of the product and upon the proposition that the shipper can transport perishables to market more expeditiously by exempt carrier than by carriers required to follow definite route and time schedules. The practice of using exempt trucks has been followed for nearly three decades by individual firms dealing in fishery and other perishable products, but until this study was made by the Bureau of Commercial Fisheries, there was no over-all information on the scope of the operations. The study covered the period 1956 to 1958. A sample of 155 interstate shippers was selected from 1500 firms engaged in distributing fishery products. Another sample was taken from both the exempt and regulated carriers. The survey showed that exempt carriers employed 778 drivers in 1958 and would accept cargo for practically any destination in the country. The carriers usually made three stops to discharge cargo in the course of a trip.

Programs and Activities of the Bureau of Commercial Fisheries, Circular 135, 20 pp., illus., processed, January 1962. A description of current programs and problems of the U. S. Bureau of Commercial Fisheries and of the commercial fishing industry. Bureau programs are primarily of a fundamental and applied research nature, using fundamental research to develop new knowledge and then applying this knowledge to the practical solution of fishery research problems. In addition, the Bureau's programs involve supplying important services to the industry, consistent with services supplied by Government to other basic industries of our country. These include such things as gear development research; new product development; vessel loan programs; collection of statistics; dissemination of current, unbiased information on supplies, movement, distribution, demand, prices, and market conditions; and other important service and management activities. Thus, the program of the Bureau is developed along policies laid down by the President, with the objective of maintaining for our country a healthy, prosperous commercial fishing industry, assuring a maximum sustained harvest of the living resources of the sea.

Seaweeds Are Not Weeds, Circular 130, 6 pp., illus., 1962.

THE FOLLOWING MARKET NEWS LEAFLETS ARE AVAILABLE FROM THE BRANCH OF MARKET NEWS, BUREAU OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C.

Number	Title
MNL-23	<u>Fisheries of Chile</u> , 28 pp.
MNL-68	<u>Fisheries Survey of Sierra Leone</u> , 8 pp.
MNL-69	<u>Fishing Industry in Northeast Brazil: Unexploited Opportunity</u> , 7 pp.
MNL-70	<u>Fisheries Survey of Liberia</u> , 3 pp.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED.

Annual Report of the Biological Laboratory, Woods Hole, Mass. (for the Year Ending June 30, 1960), Circular 99, 63 pp., illus., processed, December 1960. (Bureau of Commercial Fisheries, Biological Laboratory, Woods Hole, Mass.) This report presents a summary of research activities in the Northwest Atlantic Fishery Investigations program, and a description of vessels and shore facilities. Studies relating to the management of the groundfish of the Northwest Atlantic continue to occupy an important place on the research program. Evaluating the benefit of mesh regulation on the Georges Bank haddock fishery and assessing possible benefits of uniform mesh size for the area covered by the International Commission for the Northwest Atlantic Fisheries (ICNAF) were the two most important problems in this field in 1960.

(Baltimore) Monthly Summary--Fishery Products, February, March, and April 1962, 8 pp. each. (Market News Service, U. S. Fish and Wildlife Service, 103 S. Gay St., Baltimore 2, Md.) Receipts of fresh- and salt-water fish and shellfish at Baltimore by species and by states and provinces; total receipts by species and comparisons with previous periods; and wholesale prices for fresh fishery products on the Baltimore market; for the months indicated.

California Fisheries, 1961, by V. J. Samson, 46 pp. (Available free from the Market News Service, U. S. Fish and Wildlife Service, Rm. 208, Post Office Bldg., San Pedro, Calif.) A review of 1961 trends and conditions in the California fisheries, including a historical review of California fish-meal prices, 1941-1961. Among the subjects discussed are the tuna industry and cannery receipts; domestic tuna fishery; record yellowfin tuna catch; albacore fishery; ex-vessel prices; other tuna prices; canned tuna pack; imports; and status of California purse-seine fleets in 1961. Also covered are the sardine industry and canned pack; mackerel fishery, pack, and prices; anchovy fishery; canned pet-food pack; whaling industry; and seasons in major fisheries. Included in the statistical tables are data on tuna and tunalike fish-canners' receipts, domestic landings, cannery receipts of frozen imported tuna, and canned pack, 1959-61; sardine landings, canned pack, and meal and oil produced, 1961-62 and 1960 seasons; and the canners' receipts and pack of mackerel and jack mackerel, 1959-61. It gives data on canners' receipts of raw materials and production of anchovies, herring, squid, pet food, and meal and oil; freezings and cold-storage holdings of fish and shellfish; landings in the Eureka and San Pedro-Santa Monica areas; and imports of fishery products into Arizona and California Customs Districts, 1960-61.

California Fishery Market News Monthly Summary, Part I - Fishery Products Production and Market Data,

March 1962, 14 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) California cannery receipts of tuna and tunalike fish and other species used for canning; pack of canned tuna, tunalike fish, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; Oregon and Washington receipts (domestic and imports) of fresh and frozen tuna and tunalike fish; for the month indicated.

California Fishery Market News Monthly Summary, Part II - Fishing Information, March 1962, 10 pp., Illus. (U. S. Bureau of Commercial Fisheries, Biological Laboratory, P. O. Box 6121, Pt. Loma Station, San Diego 6, Calif.) Contains sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists; for the month indicated.

(Chicago) Monthly Summary of Chicago's Wholesale Market Fresh and Frozen Fishery Products Receipts, Prices, and Trends, April 1962, 14 pp. (Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and weekly wholesale prices for fresh and frozen fishery products; for the month indicated.

Receipts and Prices of Fresh and Frozen Fishery Products at Chicago, 1961, by G. A. Albano, 68 pp., processed, April 1962. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) In the analysis of receipts of fishery products at Chicago, the author discusses the 1961 fishery products receipts and carload receipts as compared to previous years. He also discusses sources of receipts, trends in fishery products transportation, receipts by months, receipts by species and varieties, lake trout and whitefish fishery and receipts, trends in Great Lakes commercial fishery, cold-storage inventories, and imports of selected frozen fishery products. Also covers trends in the frozen shrimp market, shrimp landings, shrimp imports and exports, and the changing ecology of Lake Erie. Also included is a table giving the names, classifications, and approximate weights of certain fishery products as used in the Chicago wholesale markets. The second section presents statistical data on fresh and frozen fishery products receipts at Chicago by species and by states and provinces of origin, states and provinces by species, species by months, states and provinces by months, totals by species, and totals by states and provinces. Receipts are tabulated by method of transportation (truck, express, and freight). A table shows the monthly range of wholesale prices of some of the leading varieties of fresh and frozen fishery products handled in the Chicago market.

Gulf Fisheries (Selected Areas), 1961, by Peter DiMarco, 44 pp., processed, May 1962. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 609-611, Federal Bldg., 600 South St., New Orleans 12, La.) Part I reports on trends and conditions in Gulf Coast fisheries during 1961 and gives a resume of the individual fisheries. For the shrimp fishery, a detailed account is presented of total landings by states, extent of coverage of landings, composition of shrimp landings by species and sizes, prices, canning, imports, cold-storage stocks, and

general trends and developments. Discusses production and market conditions for the oyster, blue crab, and menhaden fisheries, as well as imports of fresh and frozen fish and shellfish. Part II includes shrimp closed seasons in effect in the Gulf States during 1961, minimum shrimp size regulations, conversion factors and container capacities, and shrimp sizes. The second part also contains statistical tables showing total fishery products landings; Gulf menhaden landings and production of meal, solubles, and oil; crab meat production by areas and months; fishery imports through the New Orleans and Morgan City, La., Customs Districts and Port Isabel and Brownsville, Tex.; and LCL express shipments from New Orleans for 1961 by months and destination. Also includes tables showing monthly range of wholesale prices of fishery products on the New Orleans French Market; Gulf States weekly oyster and shrimp packs, 1960/61 season and packs by season 1956-61; summary of Gulf shrimp landings for selected areas, 1960-61 and 5-year averages; and fishery products market classifications in the Gulf area.

Gulf of Mexico Monthly Landings, Production and Shipments of Fishery Products, March and April 1962, 8 pp. each. (Market News Service, U. S. Fish and Wildlife Service, Rm. 609, 600 South St., New Orleans 12, La.) Gulf States shrimp, oyster, finfish, and blue crab landings; crab meat production; LCL express shipments from New Orleans; wholesale prices of fish and shellfish on the New Orleans French Market; fishery imports at Port Isabel and Brownsville, Texas, from Mexico; and sponge sales; for the months indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, April 1962, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 S. King St., Hampton, Va.) Landings of food fish and shellfish and production of crab meat and shucked oysters for the Virginia areas of Hampton Roads, Chincoteague, Lower Northern Neck, and Lower Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data on fishery products and shrimp production; for the month indicated.

New England Fisheries--Annual Summary, 1961, by John J. O'Brien, 48 pp. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Reviews the fish marketing trends and conditions at the principal New England fishery ports, and highlights of fisheries in other nearby areas. Covers food-fish landings by ports and species; industrial-fish landings and ex-vessel prices; fishing vessel news; imports; frozen fishery products; and the fish-meal market. Also includes fishery landings and ex-vessel prices by months for ports of Boston, Gloucester, New Bedford, Provincetown, Woods Hole, Portland, Rockland, Point Judith, and Stonington; highlights of the Maine sardine and lobster fisheries; highlights of the fisheries of Canada, Denmark, Iceland, Norway, and Peru; and historical data of fisheries at principal New England ports. In addition, regulations governing the Massachusetts sea and bay scallop industries are outlined.

New England Fisheries--Monthly Summary, April 1962, 21 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Review of the principal New England fishery ports.

Presents data on fishery landings by ports and species; industrial-fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, Provincetown, and Woods Hole), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connecticut (Stonington); frozen fishery products prices to primary wholesalers at Boston, Gloucester, and New Bedford; and Boston Fish Pier and Atlantic Avenue fishery landings and ex-vessel prices by species; for the month indicated.

New York City's Wholesale Fishery Trade--Monthly Summary--January and February 1962, 16 and 18 pp., each. (Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York 38, N. Y.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, including both the salt- and fresh-water sections; imports entered at New York customs district; primary wholesalers' selling prices for fresh, frozen, and selected canned fishery products; marketing trends; and landings at Fulton Fish Market docks and Stonington, Conn.; for the months indicated.

New York City's Wholesale Fishery Trade, 1961 (Includes Statistics and Marketing Trends), by T. J. Risoli, 45 pp. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York 38, N. Y.) The first part of this annual summary discusses fishery products receipts and marketing trends in the salt-water section of New York's wholesale Fulton Fish Market during 1961. The second part covers marketing trends and receipts in the wholesale fresh-water fish market for 1961. The third part consists of a series of statistical tables giving monthly overland and vessel receipts; receipts by species, methods of transportation, states, and provinces; imports of fishery products at New York City; and selling prices for fresh headless raw shrimp.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED.

1960 Lake Michigan Program of U. S. Bureau of Commercial Fisheries, 7 pp., processed, April 12, 1962. (Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service, 920 N. Main St., Ann Arbor, Mich.)

Problems Related to the Establishment of a Trawl Fishery on Lake Michigan, 8 pp., processed June 30, 1960. (U. S. Fish and Wildlife Service, Bureau of Commercial Fisheries, 920 N. Main St., Ann Arbor, Mich.)

Seattle--Landings, Receipts, and Value of Fishery Products, 1961, by Charles M. Reardon, 35 pp. (Available free from the Market News Service, U. S. Fish and Wildlife Service, Pier 42, South Seattle 4, Wash.) Reviews Pacific Northwest fisheries trends and their effect upon Seattle fishery products receipts for 1961; halibut landings; carload and truck-load shipments of fishery products from Seattle by months; imports of canned fishery products; receipts of Alaskan canned fishery products; and names, classifications, and approximate standards as used on Seattle wholesale market. The report also contains a number of statistical tables on receipts of fresh and frozen fish and shellfish, fresh and frozen salmon receipts and imports, halibut landings, ex-vessel landings by the otter-trawl fleet, Puget Sound canned salmon pack, and related data.

(Seattle) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, April 1962, 9 pp. (Market News Service, U. S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle 4, Wash.) Includes Seattle's landings by the halibut and salmon fleets reported through the exchanges; landings of halibut reported by the International Pacific Halibut Commission; landings of otter-trawl receipts reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

THE FOLLOWING ENGLISH TRANSLATIONS OF FOREIGN LANGUAGE ARTICLES ARE AVAILABLE ONLY FROM THE U. S. FISH AND WILDLIFE SERVICE, BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII.

The Distribution of Some Mass Species of Copepods in the Indian Ocean, by M. E. Vinogradov and N. M. Voronina, 6 pp., illus., processed, April 1962. (Translated from the Russian, Doklady Akademii Nauk SSSR, vol. 140, no. 1, 1961, pp. 219-222.)

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

Chemical Composition of Blood of Smallmouth Bass, by Eddie Wayne Shell, Research Report 57, 41 pp., illus., printed, 30 cents, 1961.

Estimating Red Salmon Escapements by Sample Counts from Observations Towers, by Clarence Dale Becker, Fishery Bulletin 192 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 61, pp. 355-389), 19 pp., illus., printed, 20 cents, 1962.

Fluctuations in Age Composition and Growth Rate of Cutthroat Trout in Yellowstone Lake, by Ross V. Bulkley, Research Report 54, 35 pp., illus., printed, 30 cents, 1961.

Limnology of Yellowstone Lake in Relation to the Cutthroat Trout, by Norman G. Benson, Research Report 56, 38 pp., illus., printed, 40 cents, 1961.

Mortality Studies on Cutthroat Trout in Yellowstone Lake, by Orville P. Ball and Oliver B. Cope, Research Report 55, 68 pp., illus., printed, 45 cents, 1961.

National Survey of Fishing and Hunting, 1960, Circular 120, 77 pp., illus., printed, 50 cents, September 1961.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE ORGANIZATIONS OR PUBLISHER MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

AGAR-AGAR:

Photos Showing Growth of Gelidium Cultured Artificially, by Kakujiro Ohno, 12 pp., illus., processed in

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Japanese and English. *Tokai Suisan Kagaku Kenkyusho*, 1, 125, 2-chome, Ikebukuro, Toshima-ku, Tokyo, Japan.

"Rheological Properties of Hydrogels of Agar-Agar," by Kiyoshi Arakawa, article, *Bulletin of the Chemical Society of Japan*, vol. 34, September 1961, pp. 1233-1235, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-kaigandori, Minato-ku, Tokyo, Japan.

Statement on Artificial Cultivation and Production of Agar-Agar, by Kakujiro Ohno, 30 pp., illus., processed in Japanese. *Tokai Suisan Kagaku Kenkyusho*, 1, 125, 2-chome, Ikebukuro, Toshima-ku, Tokyo, Japan.

"Studies on the Antiseptis for Agar During the Manufacturing Process in the Mild Winter. VI-Influences of Antiseptics on the Qualities of 'Tokoroten' and Agar," by Hiroaki Fujisawa and Terutake Sugawara, article, *Bulletin of the Japanese Society of Scientific Fisheries*, vol. 27, April 1961, pp. 318-322, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-kaigandori, Minato-ku, Tokyo, Japan.

ALGAE:

The Algae, by V. J. Chapman, 472 pp., illus., printed, \$8. The Macmillan Company, 60 Fifth Ave., New York 11, N. Y.

Una Clave Ilustrada de los Generos de Algas Benticas del Pacifico de la America Central (Illustrated Key to the Genera of Pacific Central American Benthic Algae), by E. Yale Dawson, article, *Pacific Naturalist*, vol. 3, no. 4, April 16, 1962, pp. 167-231, illus., printed in Spanish and English. Library, Beaudette Foundation for Biological Research, 1597 Calzada Rd., Santa Ynez, Calif.

AMINO ACID:

"The Amino Acid Composition of Cod Tropomyosin," by P. L. Hoogland and others, article, *Journal of the Fisheries Research Board of Canada*, vol. 18, July 1961, pp. 501-512, printed. Queen's Printer & Controller of Stationery, Ottawa, Canada.

ANCHOVIES:

"Ansjosiven pa Vastkusten" (Anchovy Fishing on the West Coast), by Armin Lindquist, article, *Svenska Västkustfiskaren*, vol. 32, no. 7, April 10, 1962, p. 148, illus., printed. Svenska Västkustfiskarnas Central-forbund, Goteborg, Sweden.

AQUATIC PLANTS:

Eurasian Water Milfoil in the Chesapeake Bay and the Potomac River, by Dexter Haven, Contribution No. 108, 5 pp., illus., printed, 1961. Virginia Institute of Marine Science, Gloucester Point, Va.

BACTERIOLOGY:

Type E Botulism Poisoning, Poland, by Henryk Meissel, JPRS 9425, 14 pp., printed. Joint Publications Research Service, Washington 25, D. C., June 19, 1961. (For sale by Office of Technical Services, Department of Commerce, Washington 25, D. C., price upon application.)

BIOCHEMISTRY:

"The Nature of the Components Liberated by Treatment of Cod Myosin with Alkali or with Low Concentrations of Urea," by J. J. Connell and H. S. Olcott, article, *Archives of Biochemistry and Biophysics*, vol. 94, July 1961, pp. 128-135, printed. Academic Press, Inc., 111 5th Ave., New York 3, N. Y.

"The Solubility of Actomyosin as a Biochemical Characteristic of the Processes Occurring in the Muscles of Fishes During Cold Treatment," by N. A. Golovkin and L. I. Pershina, *Chemical Abstracts*, vol. 55, October 2, 1961, 20256c, printed. American Chemical Society, 1155 16th St. NW, Washington, D. C.

BRAZIL:

Alguns Peixes Pouco Conhecidos Ocorrendo na Costa Brasileira (Some Little Known Fish Occurring on the Brazilian Coast), by Paulo de Miranda Ribeiro, *Zoologia* No. 224, 11 pp., illus., printed in Portuguese. (Reprinted from *Boletim do Museu Nacional*, May 3, 1961.) Museu Nacional, Quinta da Boa Vista, Rio de Janeiro, Brazil.

Pescas do TOKO MARU (Fish Caught by the Toko Maru), by Paulo de Miranda Ribeiro, *Zoologia* No. 228, 18 pp., printed in Portuguese. (Reprinted from *Boletim do Museu Nacional*, August 10, 1961.) Museu Nacional, Quinta da Boa Vista, Rio de Janeiro, Brazil.

CALIFORNIA:

California Fish and Game, vol. 48, no. 2, April 1962, 62 pp., illus., printed, single copy 75 cents. Department of Fish and Game, 987 Jedsmit Dr., Sacramento 19, Calif. (For sale by the Printing Division, Documents Section, Sacramento 14, Calif.) Includes, among others, articles on "Effects of Sardine Spawning Stock Size and Environment on Year-Class Production," by John Radovich; and "Introduction of Pond Smelt from Japan into California," by Joseph H. Wales.

CANADA:

Fisheries Statistics of Canada, 1960 (Saskatchewan), 9 pp., printed in French and English, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, April 1962. Contains statistical tables on Canadian fisheries located on the lakes of Saskatchewan. Includes value of fishery products by species, 1953-1960; quantity and value of landings by species; 1959-1960; quantity and value by major species and by lakes, 1959 and 1960; capital equipment in primary fisheries operations, 1959-1960; and number of persons engaged in the primary fisheries operations, 1959-1960.

Inland Fisheries, 1945-1960, Reference Paper No. 2, illus., printed in English and French, 74 pp. Department of Industry and Commerce, Quebec Bureau of Statistics, Quebec, Canada. Includes statistics on fresh-water fish caught by commercial fishermen, quantities and values by species of fish, and the annual census of fishing boats, fishing gear, wharves and shelters.

"List of the Marine Fishes of Canada," by D. E. McAllister, article, *National Museum of Canada Bulletin*, no. 168, pp. 1-76, printed. National Museum of Canada, Ottawa, Canada.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Pecheries Maritimes, Annee 1961 (Preliminary Report on Maritime Fisheries, 1961), 42 pp., processed in French and English. Department of Industry and Commerce, Quebec Bureau of Statistics, Quebec, Canada, April 6, 1962. Summarizes the twelve monthly reports and gives the size of the catch and its value to the fishermen, as well as a summary of production. Some comparisons are also made with the two previous seasons.

Pecheries Maritimes, 1958-1960 (Maritime Fisheries, 1958-1960), 96 pp., illus., printed in French and English. Department of Industry and Commerce, Quebec Bureau of Statistics, Quebec, Canada, 1962. Contains statistics of maritime fisheries of the Province of Quebec for the years 1958-1960. Includes graphs and tables on fishermen, capital equipment, catches, and landed and marketed values.

31st Annual Report, 1960, Department of Fisheries, Cat. No. F-1-1960, 138 pp., illus., printed, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, 1961. Presents the functions and activities of the Department of Fisheries for the year 1960, and the financial statements of the Department for the fiscal year 1960/61. Covers in detail the activities of the Department's Conservation and Development Service, Inspection and Consumer Service, Economics Service, Information and Educational Service, and Industrial Development Service. Also covers the Fishermen's Indemnity Plan, and activities of the Fisheries Prices Support Board, Fisheries Research Board of Canada, International Commissions, and special committees. Canada's Pacific Coast, Lake, and Atlantic Coast fisheries are also discussed. Statistics cover the quantity and value of fish and shellfish landed, exports by type of products, number of fishermen in Canada, and value of fishing craft and gear. The 56-page appendix contains financial statements for fiscal year 1960/61, and statements on fish culture development.

CATFISH:

"Potential Industry: Commercial Catfish Production," by G. E. Mason, article, *Mississippi Game and Fish*, vol. 24, no. 10, March-April 1962, pp. 9, 12, illus., printed. Mississippi Game and Fish Commission, Jackson, Miss. Describes commercial catfish production as a new farm business which is at present in an experimental stage in the State of Mississippi.

CEYLON:

Administration Report of the Director of Fisheries for 1960, Part IV-Education, Science and Art (L), 71 pp., illus., printed in Ceylonese and English, 2/35 (about 50 U. S. cents). Government Publications Bureau, Colombo, Ceylon. Report on the activities and accomplishments of the Ceylon Department of Fisheries for the year 1960. Includes, among other data, information on programs of the organization; disputes and regulations; benefits for fishermen; fishery loans, coastal and navigation aids; fishing harbors; and air-sea rescue services. It covers fresh- and brackish-water fisheries; pearl fisheries; fish factory at Mutwal; cooperative fish sales union; and fishery research. Also contains statistical tables on imports and exports of fish and fishery products; and production of fresh and cured fish for 1960.

CHILE:

"*Explotacion Pesquera y Approvechamiento de los Productos de la Pesca en Chile*" (Fishery Exploitation and Utilization of Fishery Products in Chile), *Primer Congreso Chileno de Ingenieria Quimica*, vol. 3, 307 pp., illus., printed in Spanish. Instituto de Ingenieros Quimicos de Chile, Universidad de Concepcion, Concepcion, Chile, August 1959.

Import Tariff System of Chile, WTIS Part 2, Operations Report No. 62-10, 2 pp., printed, single copy 10 cents. Bureau of International Programs, U. S. Department of Commerce, Washington, D. C., February 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Presents information on units of currency, weights, and measures; basis of custom duties; custom surcharges; method of payment of duties; preferential rates; sales and similar internal taxes; consular fees; and free ports.

COD:

"*The Oogenesis and Reproduction Cycle of the Cod*," by V. P. Sorokin, article, *Soviet Fisheries Investigations in Northern Seas*, vol. 10, pp. 125-144, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, S.W. 7, England.) *Soviet Fisheries Investigations in Northern Seas*, Moscow, U.S.S.R.

"*La production de l'industrie Canadienne de la peche a la morue a diminue en 1961*" (Production of the Canadian Cod Fishery Declined in 1961), by J. E. Turner, article, *La Peche Maritime*, vol. 41, no. 1008, April 1962, pp. 217-219, illus., printed in French. *La Peche Maritime*, 190 Boulevard Haussman, Paris, France.

COMMUNIST CHINA:

Fishery Production and Policy in Communist China, by Asakawa Kenji, JPRS 12253, 57 pp., printed. Joint Publications Research Service, Washington, D. C. (Photocopies for sale by Photoduplication Service, Library of Congress, Washington 25, D. C.--price upon application.)

COMPOSITION:

"*Estradiol-17B in the Eggs of the American Lobster, Homarus americanus*," by Robert D. Lisk, article, *Canadian Journal of Biochemistry and Physiology*, vol. 39, April 1961, pp. 659-662, printed. Division of Administration, The National Research Council, Sussex St., Ottawa, Canada.

"*Estrogens and Progesterone in the Sea Urchin (Strongylocentrotus franciscanus) and Pecten (Pecten heteroculus)*," by Charles R. Botticelli, Frederick L. Hissaw, Jr., and Herbert H. Wotiz, article, *Proceedings of the Society for Experimental Biology and Medicine*, vol. 106, April 1961, pp. 887-889, printed. Society for Experimental Biology and Medicine, 139 St. & Convent Ave., New York 31, N. Y.

"*Fish Meat Protease*," by Tadao Hata, Toshio Asao, and Etsushiro Doi, *Chemical Abstracts*, vol. 55, June 12, 1961, 11696b, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

"Guanidino Compounds from a Sea-Anemone, *Anthopleura japonica*," by Satoru Makisuma, article, *Journal of Biochemistry*, vol. 49, April 1961, pp. 284-291, printed. The Japanese Biochemical Society, c/o Dept. of Biochemistry, Faculty of Medicine, Tokyo University, Bunkyo-ku, Tokyo, Japan.

" γ -Hydroxyarginine, a New Guanidino Compound from a Sea Cucumber. III—Actions of Arginase and Arginine Decarboxylase," by Yoshimasa Fujita, article, *Journal of Biochemistry*, vol. 49, June 1961, pp. 468-471, printed. The Japanese Biochemical Society, Dept. of Biochemistry, Faculty of Medicine, Tokyo University, Bunkyo-ku, Tokyo, Japan.

CONNECTICUT:

A History of the Connecticut River and its Fisheries, by Douglas D. Moss, 15 pp., illus., printed. Connecticut Board of Fisheries and Game, Hartford, Conn., 1960.

COOKERY:

Israeli Cookery, by Lilian Cornfield, 375 pp., illus., printed, \$4.95 for U. S., \$5.70 for foreign mailing. The Avi Publishing Co., Inc., P. O. Box 388, Westport, Conn., 1962. Many cookbooks have been published, but now and then one comes along that is unique. This is a unique book of recipes that are really different. Fish and fish products need to be cooked and served in a variety of ways in order to hold the interest of the diner. This book will help all those looking for new, plain or exotic, and different recipes for all types of foods, including fish. There are recipes for appetizers, soup, meats, poultry, fish, desserts, fruits, and sauces. But because of my interest, those for fish attracted my interest particularly. Whether you are a processor, wholesaler, hotel and restaurant supplier, food editor, nutritionist, chef, hotel or restaurant operator, or a housewife, the recipes in this book will give you something different. Although characteristically Israeli, it should appeal to anyone who is interested in serving foods, and especially fish, in new and appetizing ways. Each chapter covers one of the many divergent communities existing from time immemorial which go to make up modern Israel. Their food culture; folk lore; method of preparation of typical dishes, description of menus, and spices and ingredients used are included. There are many photographs of the different communities, native dress, and illustrations of the dishes against an Israeli background which help to visualize what a dish looks like. The variety of the recipes can be more readily imagined when one realizes that included among the different communities are Arabs, Iraqis, Caucasians and Yemenites, Afghani, Sephardi Jews of the Balkans, North Africa, and Jerusalem, as well as Ashkenazis living in the country. Also, other groups from western, central, and eastern Europe, Persians, Cochin Chinese, etc. There is one or more fish recipes in almost each section of the book. As a whole, fish recipes are well represented. In the Chapter "Foods of the Near and Far East" some are simple recipes like grilled fish (Masgoof) and fish for the Sabbath, yet mouth-watering in their simplicity. Then there is the more exotic recipe, fish Musaka with eggplant, under the chapter on "North Africa." To name a few, there are recipes for flaked fish pie, pickled fried fish, fish baked with cream or olives,

fish balls in celery, fish and broad beans, Chinese fish, fish and cucumber salad; boiled, grilled, or baked carp; kedgeree fish. A chapter on chef's recipes of leading Israeli hotels and restaurants includes such fish recipes as filled fish as served at the Sharon Hotel on the Mediterranean shore just north of Tel Aviv, Mediterranean fish at the King David Hotel of Jerusalem, fish boats at the Holyland Hotel outside Jerusalem, filet de sole bonne femme from the Zion Hotel in Haifa, and Red Sea fish sausage from the Ron Restaurant in Tel Aviv. Rather unusual is a section under Israeli fish dishes which gives several recipes using fresh tuna, including tuna fish chowder, tuna fish to taste like canned tuna, steamed tuna steaks in butter, grilled tuna steaks, goulash of tuna fish, and several recipes using canned tuna. Besides a special holiday section, there is a spice table and how spices are used in Israeli, a glossary of culinary terms in Hebrew and English, an introduction which is a short history of the different ethnic groups and their integration in Israel, and a good index. For recipes that are different, this is the book. The author is well qualified to write such a book. She is a Canadian school teacher who has been working in Israel as a nutritionist and home economist for nearly 40 years except for three years when she studied nutrition in Columbia University Teachers College. The recipes have all been personally tested by the author.

--Joseph Pileggi

CRABS:

"Crab Trap Escape-Opening Studies," by Tom Jow, article, *Pacific Marine Fisheries Commission*, Bulletin 5, pp. 49-71, illus., printed. *Pacific Marine Fisheries Commission*, 741 State Office Bldg., 1400 S. W. Fifth Ave., Portland 1, Oreg., 1961.

EAST AFRICA:

East African Fishes of the EPINEPHELUS TAUWINA Complex, with a Description of a New Species, by John F. C. Morgans, 17 pp., illus., processed. East African Marine Fisheries Research Organization, Zanzibar, East Africa. Describes several species of grouper.

A Preliminary Survey of Bottom Fishing on the North Kenya Banks, by John F. C. Morgans, 84 pp., illus., processed. East African Marine Fisheries Research Organization, Zanzibar, East Africa.

Serranid Fishes of Tropical East Africa, Part I - Keys to the Subfamilies, Genera, and Species with Descriptions of Certain Species and Notes on Their Biology, by John F. C. Morgans, 54 pp., processed. East African Marine Fisheries Research Organization, Zanzibar, East Africa. Discusses the many species of rock cod in the region.

A Synopsis of Existing Knowledge on the Fishes of the Genus *Auxis* *cuvier*, 1829 in the Indian Ocean, by F. Williams, 14 pp., processed. East African Marine Fisheries Research Organization, Zanzibar, East Africa. Common name of *Auxis* *cuvier* is frigate mackerel or boo hoo.

Triggering Depth Gauge, by B. E. Bell, 11 pp., illus., manuscript. East African Marine Fisheries Research Organization, Zanzibar, East Africa, March 9, 1961.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

EXPORTS:

United States Exports of Domestic and Foreign Merchandise (Commodity by Country of Destination), 1961 Annual, Report No. FT 410, processed, Part I, 202 pp., \$1.25; and Part II, 354 pp., \$2. Bureau of the Census, U. S. Department of Commerce, Washington, D. C., April 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) The statistics in Part I cover United States exports of domestic and foreign merchandise (including fishery products and by-products) under group 00 through group 5. Part II covers merchandise under groups 6 through 9 (some items of interest to the fishery and allied industries are included). Data are shown by commodity and country of destination.

FEDERAL REGULATIONS:

Cumulative Pocket Supplement to Code of Federal Regulations, Title 50, Wildlife and Fisheries as of January 1, 1962, GS 4.108: 50/suppl. 981, 77 pp., printed, 40 cents. Federal Register Office, General Services Administration, Washington, D. C., 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.)

FISH MANAGEMENT:

"Inshore Fisheries Management," by C. O'D. Iselin, article, Oceanus, vol. 8, no. 3, March 1962, pp. 2-6, illus., printed. The Woods Hole Oceanographic Institution, Woods Hole, Mass. A well-known oceanographer presents his views on the need for an intense program of marine management in order to develop the vast fishery resources of the inshore waters. He feels that such management in the form of state aquacultural experimental stations can do for the sea what state agricultural stations have done for farming the land.

Populationsanalys vid Studium av Reglerade Sjöar (Population Analysis with Studies on Lake Management), by T. Lindstrom, 16 pp., processed in Swedish with English bibliography. (Reprinted from Vandringsfiskutredningen Meddelande, Report No. 5.) Sartryck ur Ostkusten, Hudiksvalle, Sweden, 1960.

FISH MEAL:

Protein Requirements of Broilers as Influenced by Fish Products, by T. D. Runnels and D. G. Snyder, FAO International Conference on Fish in Nutrition Paper No. C/IV. 1, 3 pp., printed. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1961.

FISH MUSCLE:

"Extractable Nitrogenous Compounds of Fish Muscle," by P. L. Vul'fson, article, Biochemistry (U.S.S.R.), vol. 26, September-October 1961, pp. 271-274, printed. Consultants Bureau, Inc., 227 W. 17th St., New York 11, N. Y.

FISH OILS:

Nutritional Effect of Oxidized and Thermally Polymerized Fish Oils, by Noboru Matsuo, 32 pp., printed. (Reprint from unidentified source.) Department of Chemistry, Seikei University, Tokyo, Japan, September 1961.

FISH POPULATIONS:

Annotated Collection of Works Published in 1956 on the Problem of Enumeration of Population Dynamics, Behavior and Distribution of Fishes, Marine Mammals, Commercial Invertebrates, and Algae and Their Relationship with Conditions of Their Existence, by N. S. Romanov, 168 pp., printed. Academy of Science, Section of Biological Science, Ichthyological Commission, Moscow, U.S.S.R., 1959.

The Application of Comparative Population Studies to Fisheries Biology--An Exploration, by S. J. Holt, 21 pp., illus., printed. (Reprinted from The Exploitation of Natural Animal Populations, pp. 51-71.) Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

"Elementary Populations of Fishes," by N. V. Lebedev, article, Zoologicheski Zhurnal, vol. 25, no. 2, 1946, pp. 136-164, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, S.W. 7, England.) Redaktsiya Zoologicheskogo Zhurnala, Podolsenskii per. d. 21, Moscow, B-64, U.S.S.R.

Factors of Population Dynamics of the Commercial Fauna in the Northwest Pacific Ocean, by P. A. Moliseev, OTS 60-51152, 10 pp., printed, 50 cents. (Translated from the Russian, Zoologicheski Zhurnal, vol. 35, no. 11, 1956, pp. 1601-1607.) Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., 1962.

Mathematical Analysis of the Population Dynamics of Fish, by V. S. Ivlev, OTS 60-51145, 10 pp., illus., printed, 50 cents. (Translated from the Russian, Vestnik Leningradskogo Universiteta, vol. 2, no. 9, 1959, pp. 119-127.) Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., 1961.

FISHY ODORS:

"Speculations on Fishy Odors and Flavors," by M. E. Stansby, article, Food Technology, vol. 16, no. 4, April 1962, pp. 28-32, illus., printed, \$1.50. The Garrard Press, 510 North Hickory, Champaign, Ill. The author explains that there are many types of fishy odors and flavors that occur in fish that are described as being "fishy." However, these odors may range from those characteristic of individual species of fish through altered odors resulting from such changes as oxidative deterioration of fish oils and release of specific compounds during bacterial or enzymatic degradation. The mechanisms of reactions and the nature of the chemical compounds responsible for fishy odors are still very imperfectly understood, and much more research is needed to clarify the nature and causes of these various fishy odors. The topics discussed in this article are: definition of fishy odor; causes of fishy odor; nitrogen-oil reactions; and experiments made to determine whether more research is warranted on the relationship of reactions between nitrogen and oil and development of fishy odors and flavors.

FOOD AND AGRICULTURE ORGANIZATION:

The Food and Agriculture Organization has published reports describing that Agency's activities under the

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Expanded Technical Assistance Program for developing the fisheries of many countries. These reports have not been published on a sales basis, but have been processed only for limited distribution to governments, libraries, and universities. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

Second Report to the Government of India on Fishing Boats, by Peter Gurtner, FAO Report No. 1096, 59 pp., illus., processed, 1959.

FOREIGN TRADE:

Licensing and Exchange Controls--Gabon, Chad, Congo, and Central African Republic, WTIS Part 2, Operations Report No. 62-13, 4 pp., printed, 10 cents. Bureau of International Programs, U. S. Department of Commerce, Washington, D. C., March 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.)

FRANCE:

"Construit aux Chantiers de la Perriere, le Paris-Bretagne premier chalutier français a peche par l'arriere (The First French Stern Trawler, the "Paris-Bretagne," was Constructed in the Shipyards of Chantiers de la Perriere), article, La Peche Maritime, vol. 41, no. 1009, April 1962, pp. 212-214, illus., printed in French. La Peche Maritime, 190 Boulevard Haussman, Paris, France.

"Le developpement de la peche par l'arriere dependra beaucoup de la possibilite de trouver de nouveaux fonds de peche" (The Development of Stern Trawler Fishing Will Depend Mostly Upon the Possibility of Finding New Fishing Grounds), by G. Lienesch, article, La Peche Maritime, vol. 41, no. 1009, April 1962, pp. 226-230, illus., printed in French. La Peche Maritime, 190 Boulevard Haussman, Paris, France.

Report sur la Production de l'Industrie des Peches Maritimes en 1961 (Report on the Production of the Fishing Industry in 1961), 66 pp., illus., processed in French. Comité Central des Peches Maritimes, Direction des Peches Maritimes, Secretariat de la Marine Marchande, Paris, France.

FREEZE-DRYING:

"Freeze-Drying Being Widely Demonstrated to Food Factories," article, Modern Refrigeration, vol. 64, September 1961, pp. 919-920, printed. Refrigeration Press Ltd., Maclarens House, 131 Great Suffolk St., London, SE 1, England

"Present Status of Freeze-Drying Surveyed," article, National Provisioner, vol. 145, October 14, 1961, pp. 12-14, 16, printed. National Provisioner Inc., 15 W. Huron St., Chicago 10, Ill.

FREEZING:

How to Freeze Fish, by Nita Orr, Misc. Pamphlet 208, 4 pp., printed. North Carolina Agricultural Extension Service, State College Station, Raleigh, N. C., July 1961. Offers helpful hints on freezing fish in order to keep that "captured freshness," including care of fresh caught fish, and how to successfully package, freeze, and store fish. A few informative questions and answers are also included.

"Influence of Different Lethal Conditions upon Fish Muscle Protein. II--Denaturation of Carp Myosins by Freezing and Frozen Storage," by Masao Migita and Shigeo Otake, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 27, April 1961, pp. 327-338, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-kaigandori, Minato-ku, Tokyo, Japan.

FRESH-WATER FISH:

Studies on the Freshwater Fishes of Japan, by Yaichiro Okada, 1,065 pp., illus., printed, \$15. Prefectural University of Mie, Tsu, Mie Prefecture, Japan, 1961. (For sale by Japan Publications Trading Co., Ltd., Central P. O. Box 722, Tokyo, Japan.)

FROZEN FISH:

Peixe Congelado--Fabrico-Armazenagem-Distribuicao (Frozen Fish--Processing, Storage, Distribution), by Luis Torres, Notas Mimeografadas do Centro de Biologia Piscatoria No. 22, 27 pp., illus., processed in Portuguese with French summary. Centro de Biologia Piscatoria, Lisbon, Portugal, 1961. A bibliographical review concerning the processing of frozen fish, its freezing chain, and resulting biochemical changes in the product.

FROZEN FISHERY PRODUCTS:

"Survival of Bacteria of Public Health Significance in Frozen Sea Foods," by H. Raj and J. Liston, article, Food Technology, vol. 15, October 1961, pp. 429-434, printed. Institute of Food Technologists, The Garrard Press, 510 N. Hickory, Champaign, Ill.

FROZEN STORAGE:

"Visual Indicator Measures Maximum Temperature of Frozen Food Loads," article, Food Engineering, vol. 33, October 1961, p. 91, printed. Chilton Company, Chestnut & 56th Sts., Philadelphia 39, Pa.

GEAR:

On the Behaviour of Fishes in Relation to Fishing Gear, by H. Mohr, 30 pp., processed. (Translated from the German, Protokolle zur Fischereitechnik, vol. 29, no. 6, 1960, pp. 296-326.) Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Lowestoft, Suffolk, England.

A Hydraulic Escalator Shellfish Harvester, J. S. MacPhail, Bulletin No. 128, 28 pp., illus., printed, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, 1961.

GERMANY:

"Nahrungsuntersuchungen an Einigen Fischen im Elbe-Mundungsgebiet" (Investigations of the Food of Some Fishes in the Estuary of the Elbe), by Heinrich Kuhl, article, Berichte der Deutschen Wissenschaftlichen Kommission für Meeresforschung, vol. 16, no. 2, July 1961, pp. 90-104, illus., printed in German with English summary. E. Schweizerbart'sche Verlagsbuchhandlung (Nagel & Obermiller), Stuttgart W., Germany.

"Über die Biologie und Fischereiliche Bedeutung der Lengfische (Molva molva L., Molva byrkelande Walb.) und des Lumb (Brosmius brosme Asc.)" (On the Biology and Economic Importance of the Ling, Blue Ling, and Torsk), by Gatot Rahardjo Joenoes, article, Berichte der Deutschen Wissenschaftlichen Kommission

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

fur Meeresforschung, News Series, vol. 16, no. 2, July 1961, pp. 129-160, illus., printed in German with English summary. E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u Obermiller), Stuttgart W., Germany.

HALIBUT:

"Proximate Composition of Canadian Atlantic Fish. I--Variation in Composition of Different Sections of the Flesh of Atlantic Halibut (Hippoglossus hippoglossus)," by A. Mannan, D. I. Fraser, and W. J. Dyer, article, Journal of the Fisheries Research Board of Canada, vol. 18, July 1961, pp. 483-493, printed. Queen's Printer & Controller of Stationery, Ottawa, Canada.

HERRING:

"The First Voyage of the Pinro Herring Research Reconnaissance Expedition to the Northwest Atlantic in the Summer of 1960," by I. G. Yudanov, article, Okeanologiya, no. 4, 1961, pp. 756-757, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Akademii Nauk SSSR, Moscow, U.S.S.R.

"Observations on Herring During a Voyage of R. Sub Severyanka," by D. V. Radakov, M. 4715, article, Bulletin' Okeanograficheskoi Komissii An SSSR, no. 6, 1960, pp. 39-40, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Akademii Nauk SSSR, Moscow, U.S.S.R.

ICHTHYOLOGY:

Copeia, no. 1, 253 pp., illus., printed, \$2.50. American Society of Ichthyologists and Herpetologists, 18111 Nordhoff St., Northridge, Calif., April 11, 1962. Includes, among others, articles on "The Redfin Pickerel, Esox americanus in North Carolina," by E. J. Crossman, "Some Phases in the Life History of the Alaskan Blackfish, Dallia pectoralis," by Roger F. Blackett, and "Marlin and Swordfish in Oceanic Waters of the Western North Atlantic," by James L. Squire, Jr.

INTERNATIONAL COMMISSIONS:

International Commission for the Northwest Atlantic Fisheries, Annual Proceedings for the Year 1960-61, vol. II, 1961, 113 pp., illus., printed. International Commission for the Northwest Atlantic Fisheries, Halifax, N.S., Canada. Presents the Commission's administrative report for the year ending June 30, 1961, including financial statements; a report of the Eleventh Annual Meeting held June 5-10, 1961; summaries of research during 1960, by countries; a compilation of research reports by subareas for 1960; and lists of scientists and laboratories engaged in the Commission's work. Also contains the following selected research paper from the 1960 Annual Meeting: "Continuous Plankton Records--The Distribution of Young Sebastes marinus (L.)" by G. T. D. Henderson.

"North Pacific Fur Seal Commission," article, Trade News, vol. 14, no. 8, February 1962, pp. 3-6, illus., printed. Department of Fisheries of Canada, Ottawa, Canada. A brief report on the Fifth Annual Meeting of the North Pacific Fur Seal Commission held in Ottawa, Canada, February 7-9, 1962. The

Commission was established in 1957 for the purpose of developing and maintaining the stocks of fur seals of the North Pacific to levels designed to produce the highest sustainable yield. It is composed of representatives from the member countries of Canada, Japan, the U.S.S.R. and the United States.

Report by the President on the Ninth Meeting of the Permanent Commission Held in Copenhagen, May 1961, 31 pp., processed in English and French. Office of the Commission, International Fisheries Convention of 1946, Board of Trade Bldgs., Whitehall Gardens, London SW1, England, 1961. Includes report by the President on the Ninth Meeting of the Permanent Commission; list of names and descriptions of delegates, advisers, and observers attending the meeting; agenda; report by the Finance Committee in regard to the financial year ending July 30, 1960, and estimate of payments and receipts for the year ending June 30, 1961; provisional budget for the year ending June 30, 1962; and a press notice issued after the Ninth Meeting.

INVESTMENT OPPORTUNITIES:

"Variety of Lending Agencies Assist Overseas Business," by William F. Doering and Robert D. Sethian; "U. S. Guides and Guards Private Investor Abroad," by Eugene M. Braderman; "Investment Office Acts as Capital 'Matchmaker,'" by Robert L. Oshins; and "Foreign Credit Insurance Available Through FCIA," by Henry G. Sheehy, articles, Foreign Commerce, vol. 67, no. 20, May 14, 1962, pp. 884-890, illus., printed, 30 cents. U. S. Department of Commerce, Washington 25, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) A series of articles on investment opportunities abroad. Provide a simplified introduction to the United States and international lending agencies, whose basic policies and programs are outlined in table form. Also point out the complications of investing abroad and describe how to obtain current information on business conditions and activities of Governments affecting business anywhere in the world. Information on a new office within the Department of Commerce designed to coordinate businessmen interested in overseas investment and appropriate projects in developing areas is also available. The problem of exporters insurance for the payment of products and the final formulation of such a program are also discussed.

ISRAEL:

Bamidgah (Bulletin of Fish Culture in Israel), vol. 13, no. 3/4, December 1961, 44 pp., illus., printed in Hebrew and English. Department of Fisheries and Fish Breeders' Association, Nir-David, D. N., Hakirya, Israel. Includes the following articles: "Monosex Culture of Carp," by S. Kessler and others; "Fishes and Fish Culture in Israel in 1960," by S. Sarig; "Study of the Growth of Tilapia galilaea (ARTEDI) in Various Saline Concentrations," by J. Chervinski; and "Transporting Live Carp in Polyethylene Bags," by G. Wohlfarth and others.

Fishermen's Bulletin, vol. 4, no. 1 (31), March 1962, 32 pp., illus., printed in Hebrew with some English abstracts. Sea Fisheries Research Station, P. O. Box 699, Haifa, Israel. This bulletin contains, among others, the following articles: "Plankton Research

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

and Its Relationship to the Herring Fishery in the North Sea," by B. Kimor (Komarovsky); "Plinius on Fish," by M. Sas; "Fisheries in the Atlantic with Las Palmas as a Base," by M. Kramer; "Fishing Vessel Hiram 1," by M. Ehrlich; "Preliminary Report on an Experiment with a Ring-Net in the Red Sea," by Z. Porath (Fried); "An Experiment with a Nylon Trawl-Net of the Mediterranean Type," by E. Hamburger and I. Herziger; "The Fisheries in Lake Tiberias During 1961," by M. Bar-Ilan; "Drift-Net Fishing in the North Sea," by B. Kimor; and "Norwegian Sardine Fishery," by A. Abrahamsen.

KOREA:

Central Fisheries Inspection Station, no. 4293, 223 pp., illus., printed in Korean with table of contents and statistical table headings in English. Ministry of Agriculture and Forestry, Central Fisheries Inspection Station, Seoul, Korea, December 1961. Contains a general review and results of fishery inspection, production, and consumption of manufactured fishery products, and related subjects.

Korea Statistical Yearbook, Ninth Edition, 438 pp., illus., printed in Korean and English. Bureau of Statistics, Economic Planning Board, Seoul, Korea, 1962. Includes, among others, a chapter on fisheries which contains the following sections: exports of marine products by years; number of households engaged in fisheries; fishing boats; shipping boats; processed marine products by kind; fish catches by species; exports of marine products by country; and production of marine products. The latest data shown are for 1961 and comparative data are also included.

LABELS:

Read the Label on Foods, Drugs, Devices, Cosmetics, and Household Chemicals, FDA Publication No. 3, Revision No. 3, 37 pp., illus., printed, 20 cents. U. S. Department of Health, Education and Welfare, Food and Drug Administration, Washington 25, D. C., 1961 revision. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) A booklet designed to furnish the consumer with information necessary to properly read labels on foods, drugs, devices, cosmetics, and household chemicals. Includes data on what is required of manufacturers by law, and what the consumer should look for when reading labels of products purchased in order to get his money's worth and guard his family's health.

LABOR IN FISHERIES:

Part 784--Provisions of the Fair Labor Standards Act Applicable to Fishing and Operations on Aquatic Products, 48H, 15 pp., printed, 10 cents. Wage and Hour and Public Contracts Division, U. S. Department of Labor, Washington, D. C., 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) It is the purpose of this Part 784 of Chapter V, Title 29 of the Federal Regulations to provide an official statement of the views of the Department of Labor with respect to the application and meaning of those provisions of the Fair Labor Standards Act which govern rights and obligations of employees and employers in the various enterprises engaged in fishing and related activities and in operations on aquatic products.

LAWS AND REGULATIONS:

Requirements of the United States Food, Drug, and Cosmetic Act, FDA Publication No. 2, 61 pp., printed, 20 cents. U. S. Department of Health, Education, and Welfare, Food and Drug Administration, Washington 25, D. C., 1961 revision. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Conveys information on the Federal Food, Drug, and Cosmetic Act that will be helpful to foreign manufacturers and exporters and to United States importers who may not be fully familiar with the requirements of this United States law. The Act applies alike to products shipped in interstate commerce and those imported into the country. While this publication was prepared primarily as a guide to foreign manufacturers and shippers, it contains a summary of the major provisions of the law and regulations which should be useful to domestic producers and shippers.

LOBSTER POTS:

"The Broadstairs Folding Lobster Pot," article, World Fishing, vol. 11, no. 5, May 1962, p. 31, illus., printed. John Trundell (Publishers) Ltd., St. Richard's House, Eversholt St., London, NW1, England. Describes the folding lobster pot which has been used in Broadstairs, England, for some 20 years or more. Contains illustrated instructions on how to make a lobster pot of this type.

MARINE AIDS:

List of Lights and Other Marine Aids, vol. III--Pacific Coast and Pacific Islands, CG-162, 351 pp., illus., printed, \$2.25. Superintendent of Documents, Government Printing Office, Washington 25, D. C., 1962. Covers lights and other marine aids to navigation maintained by or under authority of the United States Coast Guard on the Pacific Coast of the United States and Pacific Islands. For the convenience of mariners, there are also included the lighted aids, fog signals and radiobeacons maintained by British Columbia which may be used by vessels proceeding directly from the United States to Alaska. This volume covers the Eleventh, Twelfth, Thirteenth, Fourteenth, and Seventeenth Coast Guard Districts.

MARKETING:

Building Sales to Established Accounts, by Rowe Meador, Small Marketers Aids No. 79, 4 pp., processed. Small Business Administration, Washington 25, D. C., May 1962. Sometimes owners of small distributing, jobbing, or wholesaling firms miss opportunities for increased sales because they take their established accounts for granted. This leaflet points out to the small marketer that the best way to build sales to established accounts is by helping his customers to increase their sales at a profit. It discusses three kinds of help which small marketers can offer through their salesmen. Salesmen can coach their customers on: (1) sales promotion, (2) stock control, and (3) cost control.

MOLLUSKS:

Marine Mollusks from Los Angeles Bay, Gulf of California, by James H. McLean, 27 pp., illus., printed. (Reprinted from Transactions of the San Diego Society of Natural History, vol. 12, no. 28, August 15, 1961, pp. 449-476.) San Diego Society of Natural History, San Diego, Calif.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Mollusks of the Tropical Eastern Pacific, Panamic-Pacific Pelecypoda, by Axel A. Olsson, 680 pp., illus., printed, \$15. Paleontological Research Institution, 109 Dearborn Pl., Ithaca, N. Y., 1961.

MOTHER-OF-PEARL:

"Twenty Fathoms Down for Mother-of-Pearl," by Winston Williams, illustrations by Bates Littlehales, article, National Geographic, vol. 121, no. 4, April 1962, pp. 512-529, illus., printed. National Geographic Society, 16th & M Sts. NW., Washington 6, D. C.

NETS:

"On the Preservation Test of Fish Net by Antibiotic Fish Oils" (Preliminary Report), by Yukio Tomiyasu and Masamichi Toyomizu, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 19, August 1953, pp. 474-475, printed in Japanese with English summary. Japanese Society of Scientific Fisheries, 6-chome, Shiba-kaigandori, Minato-ku, Tokyo, Japan.

Savings Gear Studies on Pacific Coast Flatfish, by E. A. Best, article, Bulletin No. 5, pp. 28-47, printed. Pacific Marine Fisheries Commission, 741 State Office Bldg., 1400 S. W. 5th Ave., Portland 1, Oreg., 1961.

NORTHERN RHODESIA AND NYASALAND:

(Joint Fisheries Research Organization) Annual Report, No. 10, 1960, 83 pp., illus., printed, 7s. 6d. (about US\$1.05). Joint Fisheries Research Organization, P. O. Box 48, Samfya, Northern Rhodesia, 1962. Covers activities of the Organization in Northern Rhodesia including research performed on Lakes Mweru and Kariba, and research results on Lake Tanganyika such as hydrology and plankton; sardine fishery; shoaling and vertical migration behavior of the sardines, as recorded by echo-sounding; diurnal and vertical migrations of fish, and effect of predation; the gill-net fishery for the Nile perch; and observations on the growth of juvenile *Lates* (Nile perch) species. Also describes activities of the Organization in Nyasaland such as research results at Lake Nyasa including hydrology, long-line fishery, gill-net experiments on *Labeo mesops* (Gunther); length-weight relationships of some Nyasa fishes; and *Bagrus meridionalis* - variation in catch per unit effort and changes in gonad state. Includes three papers on fisheries of the region and a list of publications by members of the Organization.

NORWAY:

"Fiskernes Arsinntekter i 1960" (Fisheries Catch for the Year 1960), article, Fiskets Gang, vol. 46, no. 8, February 22, 1962, pp. 103-115, illus., printed in Norwegian. Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

NUTRITION:

Use of Fish in the Control of Hypercholesterolemia and Obesity, by C. M. Harlow and A. R. Morton, FAO International Conference on Fish in Nutrition Paper No. C/III/4, 3 pp., printed. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1961.

OCEANOGRAPHY:

"Gradient Measurements of Pressure Fluctuations in a Surface Sea Layer by Means of a Wave Measurer from on Board Ship," by V. F. Tsyplukhin and others, article, Okeanologiya, vol. 1, no. 3, 1961, pp. 522-530, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Akademii Nauk SSSR, Moscow, U.S.S.R.

An Introduction to Physical Oceanography, by William S. von Arx, 431 pp., illus., printed, \$15. Addison-Wesley Publishing Co., Inc., Reading, Mass., January 1962.

Method for Calculation of the Deep Sea Currents from the Surface Current and the Gradient of the Atmospheric Pressure, by A. I. Fel'zenbaum, L. F. Fomin, and V. B. Shtokman, OTS 61-11407, 21 pp., illus., printed, 50 cents. (Translated from the Russian, Akademii Nauk SSSR, Trudy Instituta Okeanologii, vol. 25, 1957, pp. 153-170.) Office of Technical Services, U.S. Department of Commerce, Washington 25, D. C., 1961.

Oceans, by Irving and Ruth Adler, 48 pp., illus., printed, \$2. John Day, Inc., 210 Madison Ave., New York 16, N. Y. Oceanography at elementary reading level.

ORSOM III--Croisiere "Epi" Oceanographie Physique (Orsom III--Cruise "Epi" Physical Oceanography), by Henri Rotschi, Rapport Scientifique No. 22, 65 pp., illus., processed in French. Office de la Recherche Scientifique, Et Technique Outre-Mer, 24, rue Bayard, Paris 8, France, March 1961.

"The Research Submarine Severyanka," by V. G. Azhazha, M. 4715, article, Biulleten' Okeanograficheskoi Komissii, An SSSR, no. 6, 1960, pp. 66-67, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Akademii Nauk SSSR, Moscow, U.S.S.R.

The Sea, by Leonard Engel and the Editors of Life, 190 pp., illus., printed. Time Incorporated, New York, N. Y., 1961. One of Life's Nature Library series. An extremely attractive volume containing a great deal of authentic information on the sea and the creatures which inhabit it, along with many excellent illustrations, most of which are in color. Covers a wide range of subject matter, from the chemistry of the sea to the underwater landscape and the great pyramid of life contained in salt water. Man's relationship to the oceans in the past, the present, and the future is also discussed.

"Severyanka--Results of Research Trips," M. 4715, article, Biulleten' Okeanograficheskoi Komissii, An SSSR, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Akademii Nauk SSSR, Moscow, U.S.S.R., 1960.

"Shallow-Water Oceanography," by Willis E. Pequegnat, article, Science, vol. 135, no. 3507, March 16, 1962, pp. 1000-1005, printed. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington 5, D. C. A report on the First

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Coastal and Shallow-Water Research Conference held at Johns Hopkins University October 19-21, at Florida State University from October 23-25, and at the University of Southern California from October 27-29, 1961. The chief objectives of the conference were: (1) to obtain some conception of the number of scientists who consider themselves to be engaged in shallow-water oceanographic research and training, (2) to review the nature of the work being carried out; (3) to review methods of sampling, observing, and data handling presently employed; and (4) to serve as a stimulus for future research and training in the field.

"Some Results of Oceanographic Research in the Norwegian and Greenland Seas," by A. P. Alekseev and B. V. Istoshin, article, Soviet Fisheries Investigations in Northern Seas, pp. 23-26, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Soviet Fisheries Investigations in Northern Seas, Moscow, U.S.S.R., 1960.

"Use of the Principles of a Discrete Counter for Transmitting Data of Deep Water Measurements," by A. N. Paramonov, article, Okeanologiya, no. 4, 1961, pp. 710-716, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Akademii Nauk SSSR, Moscow, U.S.S.R.

"Visual Underwater Observations in the Fifth Voyage of Submarine Severyanika," by O. A. Sokolov, article, Okeanologiya, no. 4, 1961, pp. 757-761, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Akademii Nauk SSSR, Moscow, U.S.S.R.

OYSTERS:

Oyster Mortalities in Delaware and Chesapeake Bays, by Lewis Eugene Cronin, 9 pp., processed. Chesapeake Biological Laboratory, Solomons, Md., August 1960.

"Zinc-65 Levels in Oysters in the Thames River (Connecticut)," by B. W. Fitzgerald, J. S. Rankin, and D. M. Skauen, article, Science, vol. 135, no. 3507, March 16, 1962, p. 926, printed. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW, Washington 5, D. C.

PAKISTAN:

Investment Factors in Pakistan, WTIS Part 1, Economic Report No. 62-3, 12 pp., illus., printed, single copy 15 cents. Bureau of International Programs, U. S. Department of Commerce, Washington, D. C., January 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Presents information on prospects for United States private investment; policy toward foreign investment; Government controls over industry; screening of investment proposals; taxation; financial facilities; and related subjects.

PARASITES:

Parasites and Diseases of Fish, vol. 42 of the Bulletin of the All-Union Scientific Research Institute Fresh-Water Fisheries, OTS 60-51169, 345 pp., illus.,

printed, \$3.50. (Translated from the Russian, Parazity i Bolezni Ryb.) Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.

PERU:

Anuario de Pesca, 1961-1962 (Fishing Yearbook 1961-1962), 235 pp., illus., printed in Spanish with some English summaries, \$1.00 (about US\$3.75). Ediciones Sudamericana S. A., Avenida Wilson 911, Lima, Peru. A supplement to the monthly publication Pesca. Contains useful information and statistical and analytical data regarding the fishing industry of Peru. Includes among others, articles on 1961 landings, Peru's fisheries and the National Fisheries Association, fisheries in the Peruvian economy, world market for fish meal, research on marine resources, fish in world nutrition, the future of the anchovy, and an economic study of Peru's fishing industry.

PHILIPPINES:

1961 Souvenir Handbook--14th Anniversary, Bureau of Fisheries, 72 pp., illus., printed. Department of Agriculture and Natural Resources, Bureau of Fisheries, Diliman, Quezon City, Philippines. The Bureau of Fisheries came into existence as a distinct bureau under the Department of Agriculture and Natural Resources on July 1, 1947, for the purpose of conservation and development of aquatic resources, developing and expanding fishery industries, and increasing fish production of the Philippine Islands. The Bureau has made considerable progress since its inception in the implementation of its program of activities. The notable accomplishments of the Bureau are described in this handbook. Also presented are several selected articles on different fisheries subjects and fisheries statistics.

POLLACK:

"Biology and Fishing Industry of Pollack," by N. V. Mironova, article, Trudy Murmanskoi Biologicheskoi Stantsii, no. 3, 1957, pp. 114-129, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Akademii Nauk SSSR, Moscow, U.S.S.R.

POLLUTION:

Ecological Effects of Sewage Pollution in Biscayne Bay, Florida: Sediments and the Distribution of Benthic and Fouling Macro-Organisms, by J. Kneeland McNulty, Contribution No. 337, 54 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 11, no. 3, September 1961, pp. 394-447.) Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla.

PORTRUGAL:

25 Anos de Assistencia a Gente do Mar (25 Years of Assistance to Fishermen), 59 pp., illus., printed in Portuguese, French, & English. Junta Central das Casas dos Pescadores, Lisbon, Portugal, 1962. A well illustrated pamphlet describing the vast range of achievements of the Portuguese Central Board of Fishermen's Welfare Centers in providing assistance and welfare to the fishermen and their families over the past 25 years.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

POTOMAC RIVER

Research on the Tidal Potomac, by William J. Hargis, Jr., Contribution No. 107, 7 pp., printed, 1961. (Reprinted from "Water Management in the Potomac Estuary," article, Interstate Commission on the Potomac River Basin, 1961, pp. 38-44. Virginia Institute of Marine Science, Gloucester Point, Va.

PREDATORS:

The Pilchard of South West Africa (Sardinops ocellata) and the Maasbunker (Trachurus trachurus)-Bird Predators, 1957-1958, by J. P. Mathews, Investigational Report No. 3, 35 pp., illus., printed. Administration of South West Africa, Marine Research Laboratory, Walvis Bay, South West Africa, 1961. A study of the feeding habits of three important fish-eating birds (Cape Gannet, Cape Cormorant, and Cape Penguin) and their possible effect on the pilchard population off the coast of South West Africa.

PRESERVATION:

"Antibiotic Ice in the Preservation of Some Fisheries Products," by C. Mateu and G. Varela, article, Annales de Bromatología, vol. 12, 1960, pp. 271-333, printed. Sociedad Espanola de Bromatología, Ciudad Universitaria (Edificio Facultad de Farmacia), Madrid, Spain.

"The Use of Biomycin for the Preservation of Cooled Fish Fillets" by T. N. Sakharova, Chemical Abstracts, vol. 55, April 17, 1961, 7693d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

QUALITY:

"Quality of Fish Reaching the Consumer," article, Torry Research Station Annual Report, 1960, pp. 14-15, printed. Torry Research Station, Aberdeen, Scotland, 1961.

RADIOACTIVITY:

"Radioactive Contamination of Foods by Atomic or Hydrogen Bomb Explosion. X--Radio-Contamination of Fish Livers in 1958," by Kakuma Nagasawa, Katsuaki Kametani, and Yasumasa Kido, Chemical Abstracts, vol. 55, December 11, 1961, 26300b, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

REFRIGERATION:

Refrigeration Engineering in the Fish Industry--A Source Book of Soviet Literature, 1922-1956, by D. N. Pributskii, OTS 61-11414, 43 pp., processed, 50 cents. (Translated from the Russian, Bibliograficheskii Spravochnik--Kholodil'naya Tekhnika v Rybnom Khozyaistve, 1922-1956, Moskva 1957.) Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. A bibliographic index of articles on refrigeration engineering which appear in various Russian journals. Presented in chronological order and in three parts: technical operation and design of cold storage plants; refrigeration processing of fish and fish products; refrigeration transport; and the technique of production of low temperatures.

SALMON:

"Breeding Salmon in Fish Farms Proved Possible in Norway," by John J. Murdoch, article, Canadian Fisherman, vol. 49, January 1962, pp. 8-10, printed. Canadian Fisherman, Gardenvale, Quebec, Canada.

"Commercial Landings of Atlantic Salmon 1910 Through 1959," by C. J. Kerswill, article, Atlantic Salmon Journal, no. 3, 1960, pp. 5-6, printed. The Atlantic Salmon Association, Inc., 1559 McGregor St., Montreal 25, Canada.

"A Consideration in Regard Fishing Effects on the Salmon Drift Net about the Appearance of Catches to the Times of Laying Out or Hauling Up of the Net," by Atusi Koike, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 27, May 1961, pp. 382-386. Japanese Society of Scientific Fisheries, 6-chome, Shiba-kaigandori, Minato-ku, Tokyo, Japan.

Forsok over Vissa Orsaker till Dodlighet hos Laxrom (Experiments on the Mortality of Salmon Roe), by Arne Lindroth, 4 pp., illus., processed in Swedish. (Reprinted from Vandringsfiskutredningen Meddelande, Report No. 5.) Sartryck ur Ostkusten, Hudiksvalle, Sweden, 1959.

Laxfisket i Ostersjoområdet under år 1959 (Salmon in the Baltic Sea and Vicinity During 1959), by Gunnar Alm, 4 pp., printed in Swedish. (Reprinted from Vandringsfiskutredningen Meddelande, Report No. 7.) Sartryck ur Ostkusten, Hudiksvalle, Sweden, September 1960.

"Muscle Proteins of Pacific Salmon (Oncorhynchus). I--A Note on the Separation of Muscle Proteins Soluble in Low Ionic Strength Salt Solutions," by H. Tsu-yuki and Eve Roberts, article, Journal of the Fisheries Research Board of Canada, vol. 18, July 1961, pp. 637-640, printed. Queen's Printer & Controller of Stationery, Ottawa, Canada.

Orsaker till Variation i Overlevnad och Tillvakt i 200 Trägbesättningar av Ensomrig lax och Oring (Causes of the Variation in Life Expectancy and of the Offsprings During 200 Different Seedings with Salmon and Trout), by Arne Lindroth, 23 pp., illus., processed in Swedish. (Reprinted from Vandringsfiskutredningen Meddelande, Report No. 6.) Sartryck ur Ostkusten, Hudiksvalle, Sweden, 1959.

"On the Weight Distribution of the Fishes Caught by the Salmon Drift Nets in the Region of the Northern Pacific Ocean. I--Fundamental Study on the Weight Distribution of Rainbow Trout Caught by the Gill Nets in the Outdoor Pool; II--The Weight Distribution of Individual Fish in the Region of the Northern Pacific Ocean," by Atusi Koike, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 27, May 1961, pp. 372-381, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-kaigandori, Minato-ku, Tokyo, Japan.

SANITATION:

The Shellfish Sanitation Program of the Public Health Service, Public Health Service Publication No. 906, 4 pp., printed, 5 cents. U. S. Department of Health, Education, and Welfare, Washington, D. C., 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Contains information on how shellfish become contaminated, initial efforts at sanitary control, the shellfish sanitation program today, and shellfish toxins. Also describes the individual responsibilities of industry, state, and the Public Health Service in a joint cooperative program for the sanitary control of shellfish.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

SARDINES:

"Sardine-Like Packs with Sprats from the Caspian Sea," by M. V. Kalantarova, M. V. Maksimova, and J. K. Rogova, article, *Trudy Tekhnologiya Rybnykh Produktov*, vol. 60, 1959, pp. 81-93, printed in Russian. VNIRO Glavniproekta, pri Gosplanie SSSR, Moscow, U.S.S.R.

SEaweeds:

"Chemical Studies on the Green Seaweed. III--On the Inorganic Components of *Enteromorpha compressa*, *Ulva pertusa*, and Their Mucilages," by Kiyo Mita, article, *Bulletin of the Japanese Society of Scientific Fisheries*, vol. 27, March 1961, pp. 239-242, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-kaigandori, Minato-ku, Tokyo, Japan.

SEINES:

"Certain Elements of Optimal Method of Operation in Fishing with Danish Seine," by A. V. Lestev, article, *Rybnoe Khoziaistvo*, vol. 34, 1958, pp. 37-46, printed in Russian. VNIRO Glavniproekta, pri Gosplanie SSSR, Moscow, U.S.S.R.

SHARKS:

"What You Should Know About Sharks (Part 1)," by Edward Waldo, article, *Louisiana Conservationist*, vol. 14, nos. 5 & 6, May-June 1962, illus., printed. Louisiana Wild Life & Fisheries Commission, Wild Life & Fisheries Bldg., 400 Royal St., New Orleans, La. This is the first part of an article on sharks. Describes a few of the estimated 300 species of sharks recognized in the world today, including, among other facts, their appearance, location, and feeding habits. Also contains a topographical diagram of a "typical" shark, illustrating terms used in the text.

SHRIMP:

"How Much 'Meat' is Found in Frozen Shrimp Packages?" by J. T. R. Nickerson, J. J. Licciardello, and M. M. Joselow, article, *Frosted Food Field*, vol. 34, no. 4, April 1962, pp. 31, 36, illus., printed. In view of the strong interest in the actual amount of shrimp meat offered in consumer packages of frozen shrimp, a survey was undertaken during the spring and summer of 1960. Five types of frozen shrimp were examined: raw, breaded; cooked, breaded; raw, shell on; raw, peeled; and cooked, peeled. The results of the survey are disclosed in this article, including comparative tables showing the shrimp meat content of the various types of shrimp tested.

"Prawn Farming Shows Promise," article, *World Fishing*, vol. 11, no. 4, April 1962, pp. 59-60, illus., printed. John Trundell (Publishers) Ltd., St. Richard's House, Eversholt St., London, NW1, England. Three Australians are at present making the world's first attempt to mass-breed prawns in captivity. This article discusses their experimental work and their reasons for believing that large-scale prawn farming on a sound economic basis is possible along a vast stretch of the eastern Australian coast. Although the effort is still in an experimental stage, the indications are that it will be successful, according to the article.

Shrimp Survey in the Newfoundland Fishing Area, 1957 and 1958, by H. J. Squires, Bulletin No. 129, 35 pp., illus., printed, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, 1961.

Contains a detailed account of equipment and methods of fishing used in a shrimp survey, and descriptions of other types of nets used elsewhere. Results of explorations by area are given, including the Gulf of St. Lawrence, southwest coast, and east and northern coasts of Newfoundland. Also includes a note on the preparation of shrimp for market.

SMALL BUSINESS MANAGEMENT:

Providing Management Talent for the Small Business, by Leon C. Megginson, Management Research Summary, 4 pp., processed. Small Business Administration, Washington 25, D. C., October 1961. A summary of a report on a study of small businesses in Louisiana and several other Southern States. Management is defined as the function by which the objectives of an organization are attained through cooperative action. According to the report a management selection program should include (1) systematic recruitment of potential managers, (2) preliminary screening of candidates on the basis of past records and preliminary interviews, (3) further probing of their abilities through tests and references, (4) a series of intensive interviews, and (5) final selection based on all the data plus the personal judgment of the executive making the decision. The most satisfactory plans for developing executives include training both inside and outside the company.

Small Business Problem Studies, by John B. Kline and John T. Doutt, Management Research Studies, 4 pp., processed. Small Business Administration, Washington 25, D. C., April 1962. The research reported in this summary consists of case studies of small manufacturing companies and small retail, wholesale, and service establishments in the Rocky Mountain area. In the original report, each case is presented in a narrative style and covers a particular problem confronting the owner-manager or management group. The narratives in many cases are documented by various exhibits which support the situation; for example, organization charts, cost schedules, sales records and charts, personnel schedules, maps, job descriptions, balance sheets, income statements, and inventory records.

SMOKED FISH:

"The Phenol Composition in Smoke-Cured Fish," by A. I. Yuditskaya and T. M. Lebedeva, 10 pp., illus., processed. (Translated from the Russian, *Rybnoe Khoziaistvo*, vol. 9, 1960, pp. 69-73.) U. S. Department of Commerce, Office of Technical Services, Washington 25, D. C.

SPAIN:

"La Sardina, los Tunidos, y la Anchoa en 1961" (The Sardine, the Tuna, and the Anchovy in 1961), by Maresiro, article, *Industria Conservera*, vol. 28, no. 272, February 1962, pp. 29-30, printed in Spanish. Union de Fabricantes de Conservas de Galicia, Calle Maresiro de Valladares, 41, Vigo, Spain.

SPINY LOBSTERS:

"This Market is Worth £A4.8 Million," by D. J. Gates, article, *Fishing News International*, vol. 1, no. 3, April 1962, pp. 57-58, 61-62, illus., printed, 6s. 6d. (about 90 U. S. cents). Arthur J. Heighway Publications, Ltd., Ludgate House, 110 Fleet St., London, E.C. 4, England. The first of two articles describing

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

the rapidly growing crayfish (spiny lobster) industry of Australia. Aspects of crayfish production are outlined. Includes production figures, vessels, methods of processing at sea, handling and processing, export regulations, and refrigeration equipment.

STERN RAMP:

"The Case for the Stern Ramp," article, *World Fishing*, vol. 10, October 1961, pp. 28-29, 35, printed. John Trundell (Publishers) Ltd., St. Richard's House, Eversholt St., London, NW1, England.

SUNFISH:

"Occurrence of Early Developmental Stages of the Oblong Ocean Sunfish, *Ranzania laevis* (Pennant) in the Central North Pacific," by Kenneth Sherman, article, *Copeia*, no. 4, 1961, pp. 467-470. American Society of Ichthyologists and Herpetologists, 18111 Nordhoff St., Northridge, Calif.

SWEDEN:

Gill Disease, en Sjukdom som Fiskodlingsanstalterna [Vara Uppmarksamma pa (Gill Disease, a Sickness which the Fish Hatcheries Must Watch Closely)], by Olof Ljungberg, 5 pp., processed in Swedish. (Reprinted from *Vandringsfiskutredningen Meddelande*, Report No. 4.) Sartryck ur Ostkusten, Hudiksvalle, Sweden, 1960.

Nagra Synpunkter pa Vardering av Skada pa Fisket Genom Sjoregleringar (Some Viewpoints on the Evaluation of the Injury to the Fishing Industry Through Sea Regulations), by Lennart Hannerz, 17 pp., processed in Swedish. (Reprinted from *Vandringsfiskutredningen Meddelande*, No. 1.) Sartryck ur Ostkusten, Hudiksvalle, Sweden, 1959.

SYRIA:

Import Tariff System of Syria, WTIS Part 2, Operations Report No. 62-14, 2 pp., printed, single copy 10 cents. Bureau of International Programs, U. S. Department of Commerce, Washington, D. C., March 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Presents information on units of currency, weights and measures; bases of specific and ad valorem duties; method of payment of duty; custom surtaxes; sales and other internal taxes; preferential duties; consular documents and fees; trade restrictions; and other special regulations.

TARIFF AND TRADE:

General Agreement on Tariffs and Trade (1960-61 Tariff Conference--Geneva, Switzerland). Volume I--Negotiations with the EEC Under Article XXIV: 6 of GATT. Reciprocal Negotiations with the EEC, Austria, Canada, Denmark, Finland, Israel, New Zealand, Norway, Pakistan, Peru, Portugal, Sweden, Switzerland, and the United Kingdom, Department of State Publication 7349, Commercial Policy Series 186, 280 pp., illus., printed, \$1.25. Department of State, Washington 25, D. C., March 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) The United States has completed the larger part of its negotiations in the bilateral phase of the 1960-61 Tariff Conference held under the auspices of the Contracting Parties to the General Agreement on Tariffs and Trade (GATT), in Geneva, Switzerland. This

report includes the results of reciprocal negotiations with the European Economic Community (EEC) and other member countries, and the results of renegotiations with the EEC.

Volume II--Compensatory Renegotiations, Department of State Publication 7350, Commercial Policy Series 187, 110 pp., illus., printed, 35 cents. During the Tariff Conference the United States negotiated with a number of contracting parties making changes in their schedules of concessions. The results of those negotiations which have been completed are included in this report.

TIDE TABLES:

Tide Tables--West Coast, North and South America (including the Hawaiian Islands), 1963, 224 pp., printed, \$1. Coast and Geodetic Survey, U. S. Department of Commerce, Washington 25, D. C., 1962. High and low water predictions.

TRADE EXPANSION ACT:

Questions and Answers on the New Trade Expansion Act, Department of State Publication 7364, Commercial Policy Series 188, 44 pp., illus., printed. Department of State, Washington 25, D. C., April 1962. On January 24, 1962, President Kennedy proposed to the Congress a new Trade Expansion Act to replace the Trade Agreements Act of 1934, which is scheduled to expire June 30, 1962. The new act, the President explained, is designed to meet the needs of the U. S. in the changed trading world of the 1960's. This publication has been prepared to answer numerous questions that have arisen during the wide and necessary public discussion of the proposed legislation.

TRADE LISTS:

The U. S. Department of Commerce has published the following mimeographed trade lists. Copies may be obtained by firms in the United States from the Commercial Intelligence Division, Office of Trade Promotion, Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C., at \$1 a copy.

Canneries--Mexico, 13 pp. (April 1962). Lists the names and addresses, size of firms, and types of products handled by each firm. Includes producers and exporters of canned fish and shellfish and frozen fish. Also contains basic trade and industry data.

Boat and Ship Builders, Repairers and Chandlers--Ecuador, 3 pp. (April 1962). Lists the names, addresses, and size of boat builders, and types of vessels (including fishing craft) built by each firm.

TRANSPORTATION:

"Air-Ship Fresh Fish Cross-Country," article, *Food Processing*, vol. 22, October 1961, pp. 134, 136, printed. Putnam Publishing Co., 3 E. Delaware Pl., Chicago 2, Ill.

TRAWL BOARDS:

"Some Experiments with Trawl Boards," by Dick Brett, article, *World Fishing*, vol. 11, no. 5, May 1962, pp. 43-44, 47, illus., printed. John Trundell (Publishers) Ltd., St. Richard's House, Eversholt St., London, NW1, England. Discusses various experiments made by the author in an attempt to improve the traditional type

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

trawl board. Some of his troubles, not only in designing boards, but in getting them accepted by local fishermen, are described in this article.

TRAWLERS:

"The Most Economic Steaming Speed of Trawlers," by U. Wegner, article, *Schiffstechnik*, vol. 37, 1960, p. 114, printed. C. Schroeder und Co., 10 Stubbenhuk, Hamburg II, Germany.

TRAWLING:

Deep Sea Trawling and Wing Trawling, 106 pp., printed, 21s. (about US\$2.95). The Gourrock Ropework Co., Ltd., Port Glasgow, Scotland, 1961.

TRAWL NETS:

"The Design and Operation of the Wing Trawl," by Alan Glanville, article, World Fishing, vol. 10, September 1961, pp. 23-25, printed. John Trundell (Publishers) Ltd., St. Richard's House, Eversholt St., London, NW1, England.

"French Trawl Can Improve Catches," article, World Fishing, vol. 11, no. 5, May 1962, pp. 32-33, illus., printed. John Trundell (Publishers) Ltd., St. Richard's House, Eversholt St., London, NW1, England. Summary of a comprehensive and informative report on the trials carried out with the Boulogne white fish trawl in two Aberdeen trawlers. Included are diagrams showing various parts of the trawl.

TROPICAL FISHERIES:

Tropical Inland Fisheries, by C. F. Hickling, Tropical Agriculture Series, 371 pp., illus., printed, 42s. 6d. (about US\$6.00). Longmans Green & Co., Ltd., 6-7 Clifford St., London W1, England.

TUNA:

Le Thon Patudo, PARATHUNNUS OBESUS (Lowe) et sa Peche (The Big-Eyed Tuna and Its Fishery), by Fernando Frade, Studies, Investigations and Documents No. 69, 74 pp., illus., printed in Portuguese with French and English summaries, 25\$00 (87 U.S. cents). Junta de Investigacoes do Ultramar, Rua da Junqueira, 86, Lisbon, Portugal, 1960.

"Tuna Harvest," by Gerald V. Howard, article, Fishing News International, vol. 1, no. 3, April 1962, pp. 22-23, 25-26, 29, illus., printed, 6s. 6d. (about 90 U.S. cents). Arthur J. Heighway Publications, Ltd., Ludgate House, 110 Fleet St., London, EC4, England. Describes the tuna industry around the world, including characteristics of various species of tuna, amount of landings, fishing methods, and condition of resources. Also contains a map showing world-wide distribution of the albacore tuna.

UNITED STATES GOVERNMENT:

General Regulations for the Enforcement of the Federal Food, Drug, and Cosmetic Act, Title 21, Part I, 28 pp., printed, 25 cents. U. S. Department of Health, Education, and Welfare, Food and Drug Administration, Washington, D. C., 1961. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Presents provisions of the regulations promulgated under the Federal Food, Drug, and Cosmetic Act as amended.

U.S.S.R.:

Collection of the Literature on Fisheries Economy of the Southern Basins of the U.S.S.R. from 1918 to 1953, by N. S. Romanov, 296 pp., printed. Academy of Science, Section of Biological Science, Ichthyological Commission, Moscow, U.S.S.R., 1955.

Collection of the Literature on Fisheries of the Far East U.S.S.R. from 1923 to 1956, by N. S. Romanov, 291 pp., printed. Academy of Science, Section of Biological Sciences, Ichthyological Commission, Moscow, U.S.S.R.

On Nature of Sounds Produced by Certain Black Sea Fish, by V. R. Protasov and Ye. V. Romanenko, JPRS 11738, 6 pp., printed. Joint Publications Research Service, Washington, D. C. (Photocopies for sale by Photoduplication Service, Library of Congress, Washington 25, D. C. - price upon application.) (OTS:62-15354, Xerox reproduction, \$1.10, also for sale by the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.)

"Russia: Advanced Ocean Fishing Country," by J. L. Kask, article, Fishing News International, vol. 1, no. 3, April 1962, pp. 9-13, illus., printed, 6s. 6d. (about 90 U.S. cents). Arthur J. Heighway Publications, Ltd., Ludgate House, 110 Fleet St., London, EC4, England. Describes the planning and organization that lies behind the rapid development of the Russian fishing industry which, in a very few years, transformed a non-seafaring nation into one of the most advanced ocean fishing countries in the world. The author's on-the-spot look at some of the fishing ports as well as demonstrations of fishing on the Black and Caspian Seas and on the Volga River, complemented by seminar reviews of all phases of fisheries, planning, development, and research in the U.S.S.R. by authorities in those fields forms the background and source of the information on which this report is based. In conclusion, the author states that: "Judging from past performance, present activities and stated policy, it appears safe to predict that the U.S.S.R. will continue to expand and intensify her ocean fishing in all international waters. She seems to be tooling up scientifically and operationally to do a thorough job."

"Severyanka in the Schools of Herring and Cod," by M. Ryzhenko, article, Rybvodstvo i Rybolovstvo, vol. 4, 1961, pp. 29-30, printed in Russian. (Translation available on loan only to approved borrowers from Keeper, Science Museum Library, London, SW7, England.) Ministerstvo sel'skogo khoziaistva SSSR, Moscow, U.S.S.R.

"Sovjet har 100,000 fiskefartyg" (Soviets Have 100,000 Fishing Vessels), by Hans Forshell, article, Svenska Västkustfiskaren, vol. 32, no. 7, April 10, 1962, p. 149, illus., printed in Swedish. Svenska Västkustfiskarnas Central-forbund, Goteborg, Sweden.

VESSELS:

Research Vessel Design, 618 pp., illus., processed. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1961. Reprints of papers and discussions presented to the FAO Research Vessel Forum in Tokyo Sep-

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

tember 18-30, 1961. The purpose of the meeting was to exchange information on all important technical aspects of the design and operation of research vessels, particularly those for fishery research, and to provide such experts as oceanographers, biologists and naval architects who work, or may have occasion to work, in this field an opportunity to discuss these problems.

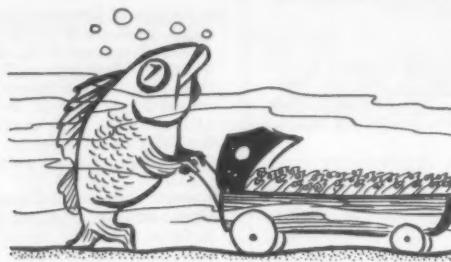
VITAMIN D:

"Determination of Vitamin D in Fish and Fish Products by Chromatography with Japanese Acid Clay."

by Hideo Higashi and others, *Chemical Abstracts*, vol. 55, November 13, 1961, 23865g, printed, American Chemical Society, 1155 16th St. NW., Washington, D. C.

WORLD TRADE:

Import Tariff System of Mexico, Operations Report No. 62-16, WTIS Part 2, 2 pp., printed, 10 cents, Bureau of International Programs, U. S. Department of Commerce, Washington, D. C., April 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.)



Prolific fish—such as carp—often deposit as many as 150,000 eggs annually.

HADDOCK

The mating call of male haddock, said to sound somewhat like the noise made by an outboard motor, has been tape-recorded by marine biologist Per Hognestad at Tromsø Aquarium, Tromsø, Norway. (*News of Norway*, May 3, 1962, Norwegian Information Service.)

Editorial Assistant--Ruth V. Keefe

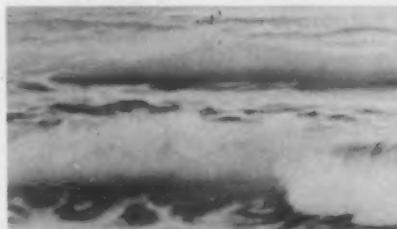
Compositors--Jean Zalevsky, Alma Greene, Helen Paretti, and Rae Carron

* * * * *

Photograph Credits: Page by page, the following list gives the source or photographer for each photograph in this issue. Photographs on pages not mentioned were obtained from the Service's file and the photographers are unknown.

Pp. 4 & 7--J. Pileggi; pp. 9 & 23--F. B. Sanford and C. F. Lee; pp. 25 & 27, fig. 1--J. J. Murray; p. 40--A. H. Howell; pp. 54-55--H. Nomura; p. 60--A. W. Anderson; p. 72--A. J. Suomela; p. 99--B. K. Brigham, Woods Hole, Mass.

OUTDOOR CLAMBAKE



12 dozen steamer clams
12 ears of corn, in the husks
Lemon wedges

12 baking potatoes
12 live lobsters (1 pound each)
Melted butter or other fat



Wash clam shells thoroughly. Wash potatoes and cut off ends. Remove corn silk from ears of corn and replace husks.

Use a large metal container, similar to a thirty-gallon galvanized garbage can, with a tight fitting lid. Have 5 baskets with folding handles made to fit inside the container. The bottom of the baskets should be made of half-inch, galvanized wire mesh. Place 3, 6-inch high supports in the bottom of the container.

Put water in the bottom of the container to a depth of about 5 inches. Place potatoes in a basket and place on supports in the container. Finish filling container by placing corn in the next basket, lobsters in the next two baskets, and clams in the top basket. Cover container and place over a hot fire. Steam for 1 hour. Remove baskets. Crack lobster claws. Serve with lemon wedges and melted butter. Serves 12.



From Fisheries Marketing Bulletin "Outdoor Fish Cookery" issued by the National Marketing Services Office, U. S. Bureau of Commercial Fisheries, Chicago 5, Ill.

k from
with a
staines
face 3
photom
placing
bottle.
Credi

VOL